Refrigerant-22: Hero or Villain? . . . . . Pg. 22

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ASHRAE, ARW Set Programs For February Conventions

ARW Meets Feb. 11 At Pick-Congress

CHICAGO—Only four months after its 25th anniversary convention aboard the *S. S. Hanseatic*, Air Conditioning & Refrigeration Wholesalers will stage its 26th annual convention at the Pick-Congress hotel here Feb. 11-13.

The February dates were selected to precede immediately the International Air Conditioning Exposition sponsored by the American Society of Heating, Refrigerating & Air-Conditioning Engineers.

William C. Miessemer, ARW president, pointed out that the shift came as a result of expressed member preference for tying in the ARW convention with industry shows.

(Continued on Page 4, Col. 3)

Conrad Hilton Draws ASHRAE Feb. 13-16

CHICAGO—A tight schedule of four technical sessions, six symposiums, and six off-the-record forums plus annual luncheon, banquet, and two side trips will be crowded into the four-day semiannual meeting of the American Society of Heating, Refrigerating & Air-Conditioning Engineers to be staged in the Conrad Hilton hotel here Feb. 13-16.

The meeting coincides with the 15th annual International Heating & Air Conditioning Exposition, sponsored by ASHRAE, at Chicago's International Amphitheatre.

ASHRAE will get through this schedule by holding two and even three sessions simultaneously.

First and second technical sessions, the latter devoted to insulation, are scheduled for Monday morning, along with a symposium on frozen food handling.

Meeting simultaneously on Tuesday morning are a technical session on refrigeration, and symposiums on medium temperature water heating and on air conditioning.

Two symposiums, one on ASHRAE research and technical program plans and the other on domestic refrigerator engineering, are scheduled for Wednesday morning.

A fourth technical session

(Continued on Page 4, Col. 5)

Unitary Shipments Up 12% In 9 Mos.

WASHINGTON, D. C.—Manufacturers' shipments of unitary air conditioners reported to the Air-Conditioning & Refrigeration Institute for the first three quarters of 1960 totaled 261,634 units, excluding coils, a gain of 12% over shipments for the same period of 1959.

The shipment figures include

(Continued on Page 25, Col. 5)

Outside Dope

By GEORGE F. TAUBENECK

Learn to live and laugh — thus delay your epitaph

The Man Who . . .

Twenty-five years ago "Dope" felt like a pioneer, because he was going to Australia!

At that time, Australia literally and figuratively was at the other end of the world. It was so far away (almost a month by fastest ship) that an American down there was as rare as an Eskimo in Florida.

Yet, who met our ship at the dock in Sidney? Ed Wilcox of Detroit!

He'd preceded us there by five years.

The World Was His Oyster

Edmund H. Wilcox, who has just retired as vice president of Kelvinator International Corp., joined that pioneer manufacturer of electric refrigerators many years before it was merged into Nash-Kelvinator, and into its present operation as a subsidiary of American Motors Corp.

When he affiliated with Kelvinator in 1925, export sales were a trickle. Today, more Kelvinators are sold outside the United States than in the U.S.

Ed Wilcox has been one of the key architects in the design and building of a worldwide operation which stretches from Iceland to Zanzibar.

He possibly has done more for the advancement of world trade in refrigeration products than any other individual.

He has established nearly 300 distributors in 141 countries throughout the world. They are supplied from Detroit, from

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Furnace Shipment Dip May Halt In '61

WASHINGTON, D. C.—Shipments of warm air furnaces in 1961 should approximate 1960 levels, according to a report issued recently by the Business & Defense Services Administration, U. S. Dept. of Commerce.

The report said shipments were expected to decrease 18% in 1960 from the 1959 record volume of 1,435,414 units, in line with a decline in single-family housing starts, the principal market for this type.

The report was prepared under the supervision of Charles P. Redick, director of the BDSA's Building Materials Div.

Regarding the 1961 outlook, it was noted that warm air furnace shipments "have traditionally been closely related to the

(Continued on Page 23, Col. 1)

500 Exhibitors Set For NAHB Show

CHICAGO—Nearly 80 manufacturers of equipment associated with the air conditioning, heating, refrigeration, and insulation industries will be among the more than 500 exhibitors at the National Association of Home Builders Exposition in Chicago's new McCormick Place lake front hall, Jan. 29 to Feb. 2.

This year for the first time, Builder Show exhibits will be

(Continued on Page 25, Col. 1)

Acquisition Moves Affect Mathes, Friedrich, Paragon

Republic-Transcon Dickers for Mathes

LOS ANGELES — Negotiations reportedly are under way between Glen Alden Corp. and Republic-Transcon Industries, Inc., here for the acquisition of Glen Alden's Mathes Co. division by Republic-Transcon.

In New York City, Albert A. List, president and chairman of Glen Alden, would neither confirm nor deny the report.

But a Republic-Transcon spokesman here was quoted as saying negotiations "are definitely being carried on for the acquisition of Mathes." However, he added, "we cannot confirm or deny any final agreement as yet."

Republic-Transcon, it was said, has offered Glen Alden 750,000 new common shares for Mathes. The transaction would increase Republic-Transcon's outstanding common shares from 1,810,913 to 2,560,913 and would give Glen Alden a 30% minority interest in the Los Angeles firm, it was reported.

Headquartered in Marble Falls, Texas, Mathes makes air conditioning equipment and heat pumps.

Formed early last year from the consolidation of Trans Continental Industries and Republic Appliance Corp., Republic-Transcon makes gas and electric water heaters and other products.

Ling-Temco Purchases Friedrich for Cash

DALLAS—Ling-Temco Electronics, Inc., one of America's largest electronics companies, has announced acquisition of Ed Friedrich, Inc., and its wholly-owned subsidiary, Friedrich Refrigerators, Inc., in a multi-million dollar cash transaction.

The exact amount of cash consideration was not disclosed.

Friedrich was described in the announcement as one of the top five firms in the air conditioning and refrigeration industry. Its sales during the fiscal year ending Aug. 31, 1960 totaled $17,400,000. This is expected to increase to $21 million during the current fiscal year.

Friedrich manufactures room

(Continued on Page 25, Col. 4)

A. M. F. Negotiates For Paragon Electric

NEW YORK CITY — Morehead Patterson, president of American Machine & Foundry Co., announced recently that A.M.F. will acquire Paragon Electric Co., Two Rivers, Wis., in exchange for A.M.F. stock.

The exact number of A.M.F. shares remains to be determined on the basis of an agreed formula. A spokesman was

(Continued on Page 4, Col. 5)

Michigan Attorney General Baffled By Decision on Registration Law

DETROIT — State officials and attorneys this week are carefully studying the 35-page opinion of a Federal judge to determine what the next move will be to settle questions raised by the opinion regarding Michigan's law requiring registration of architects and engineers as well as land surveyors.

As reported in the Jan. 9 issue of the NEWS, Federal Judge Ralph M. Freeman ruled here recently that the law is unconstitutional. So is a similar law in Ohio, he held.

Asked what action the state would take in view of the opinion, Assistant Attorney General Maurice M. Moule said:

"We don't know the answer and won't know what our next step will be until we see the judge's decision. There is a 1955 decision of the Michigan Supreme Court in which the eight justices unanimously declared the law was constitutional."

Referring to this decision in his opinion, Judge Freeman said the exact question on which he found the registration law faulty had not been raised in the case that went to Lansing six years ago.

Copies of the Freeman opinion were to be available last week to the State Board of Registration for Architects, Professional Engineers and Land Surveyors, and to attorneys.

Judge Freeman gave his opinion in an oral review of a lawsuit filed by Modern Engineering Service Co. of suburban Berkley against General Electric Co. At issue was a $146,000 bill for services at a G-E plant near Cincinnati.

Judge Freeman refused to dismiss the suit on the claim that the Berkley firm was not registered according to Michigan or Ohio laws. Challenging the constitutionality of both

(Continued on Page 4, Col. 1)

York Machinery Div. Promotes Divine, Smiley; Other Shifts Announced

YORK, Pa.—The appointment of William H. Divine as assistant sales manager, Engineered Machinery Div. of York Div., Borg-Warner Corp., has been announced by M. S. Lebair, York vice president.

Divine has been manager of refrigeration sales since 1958. He is succeeded in that post by Arnett Smiley, a veteran of 18 years with York.

Divine joined the York field sales department in 1952 following service as product specialist in the Air Conditioning Div. of General Electric Co. After establishing an outstanding sales record in Philadelphia and Washington, he became refrigeration sales manager at the home office in York.

Smiley joined York's graduate engineer training program in 1942. He has most recently been serving as refrigeration sales engineer with headquarters in Cincinnati.

Also announced by York was the appointment of Edward N. Kerrigan as southwest regional manager for Engineered Machinery Sales. He has been central regional manager of field services in Chicago.

John V. Clippinger, a veteran of 23 years with York, has joined a York Associate, Marchase Refrigeration Co., Pittsburgh, as manager and assistant to the president. For several years, he has been manager of York's Parts & Accessories Dept.

Ruston Named President of Amstan Supply

NEW YORK CITY—C. Gilmore Ruston has been appointed president of the Amstan Supply Div. of American-Standard, it was announced recently by Joseph A. Grazier, corporation president.

C. G. Ruston

Ruston succeeds Robert F. Sells, who is retiring after 38 years' service with the company.

Ruston formerly was vice president, field operations of Amstan Supply, which operates 63 wholesale branches throughout the country.

L. A. Refrigeration Contractors Can Install Controls But Need Permit

LOS ANGELES—The city's Building & Safety Commission has approved a ruling which allows refrigeration and air conditioning contractors (C-20 and C-38) to install control work along with electrical contractors.

The ruling also requires that permits now be issued for the first time for the installation of controls in refrigeration and air conditioning.

A proposal of the Building & Safety Dept. that only electrical contractors be permitted to install controls was, at the request of the Refrigeration & Air Conditioning Contractors Association of Southern California, reversed by the department, the association reported, thus permitting refrigeration and air conditioning contractors to install this work.

Milivolt controls for heating are excluded from the permit requirement.

The association, in presenting the matter of refrigeration and air conditioning contractors installing control work, pointed out to the Building & Safety Commission that in Los Angeles where there is a remodeling and refrigeration and air conditioning is installed, the contractor must obtain a building permit, a plumbing permit, a heating and refrigeration permit, and an electrical permit.

"Contractors and members of the Building & Safety Commission agreed that this was an undue burden on the contractor although no action was requested by the association and none was taken," it was noted. "Contractors are so used to the many restrictions on their operations that a few more appear to make no difference.

"Properly, upon the request of a contractor for a permit for refrigeration or air conditioning work, submitted to the Building & Safety Dept., it should be the duty of that department to issue all of the various permits necessary for such installation.

"The contractor should not have to spend the time going from one division to another and getting permits for the same installation. However, until contractors complain to the association and the association takes effective action, such red tape will remain."

Thermo Equipment To Make Truck, Bus Cooling Units

NEWARK, N. J.—Thermo Equipment Corp., long established as a distributor of refrigeration and air conditioning units and parts for motor vehicles, with an "extremely active" service division, has announced its entrance into the manufacturing field with greatly-expanded facilities.

R. H. Krug

The company, located at 179 Pulaski St. here, "will continue to distribute competitor units but will concentrate its sales efforts on its own newly-developed and highly-economical air conditioning and refrigeration units for buses and trucks," according to Carl Fehrenbach, Jr., president of Thermo Equipment and its service and parts division, United Equipment Service.

The D-12, the company's basic truck refrigeration unit, will be marketed shortly, Fehrenbach said. The unit consists of two separate sections.

Fehrenbach also announced the appointment of Regis H. Krug to the newly-created position of sales manager, bus air conditioning. Krug has spent 17 years at Greyhound Lines.

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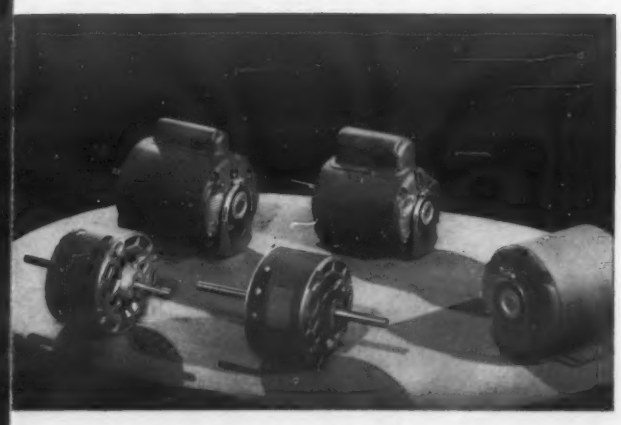

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Registration Law--

(Continued from Page 1, Col. 5)

laws, MES won the right to a day in court on the service fee.

The judge ruled that the laws were "vague and indefinite," thus violating the due process part of the Fourteenth Amendment of the Federal Constitution. Another fault, he said, was that the law has more than one object in lumping the land surveyors in with architects and engineers and then inserting "vague" police powers.

A question raised by the opinion is this: what happens when a Federal judge says a state law is unconstitutional and a state supreme court says it is constitutional?

The Michigan Supreme Court, in its 1955 decision upholding the law, said the wording of the statute was "plain, certain, and unambiguous." It approved the object of the law to "safeguard the life, health, and property of Michigan citizens."

The registration law was passed in 1937 to include the three professions. Architects had been registering since 1915 and engineers since 1919. The law provides for a registration fee of from $15 to $30 and renewal fees of $10 every three years.

G-E attorneys indicated they may appeal Judge Freeman's ruling to the U. S. Circuit Court of Appeals to decide if the law is valid. One of them commented:

"This is an interlocutory ruling that is not appealable as a matter of right. We will ask Judge Freeman to make it possible in the form of the opinion to ask the Court of Appeals to hear the case in question."

ARW Meeting Program--

(Continued from Page 1, Col. 1)

As a result, the 1962 convention will be held in Los Angeles just prior to the ARI Exposition and in 1963 in New York City just prior to the next International Exposition.

At the coming convention, he said, members will be presented with a number of constitutional changes. These are intended to broaden the basic objectives of the association, revise the selection of association officers, and provide a new method of divisionalizing regional operations.

These changes, Miessemer said, "will have an effect on our methods and means of contacting manufacturer suppliers."

Business meetings are scheduled for both Saturday and Sunday, Feb. 11 and 12.

During these meetings, ARW legal counsel will present his views on the "OEM for resale" problem, looking at it from both the legal and moral aspect of doing business.

Austin Kelly III of the National Employe Relations Institute in New York City will present a seminar on incentives, profit sharing, and pension programs. Three panels will discuss current business topics.

Schedule of events is as follows:

FRIDAY, FEB. 10

9 a.m.—Board of directors meeting.

12:15 p.m.—Board of directors luncheon.

12:30 p.m.—Wives of directors and convention committee luncheon.

1:30 p.m.—Board of directors meeting continued.

2 to 6 p.m.—Registration desk open.

SATURDAY, FEB. 11

9 a.m. to 4 p.m.—Registration desk open.

9:30 a.m.—Annual meeting—members only.

12 noon—Awards luncheon—members and guests.

2 p.m.—Annual meeting—members only.

4:45 p.m.—1961 board of directors meeting.

6:30 p.m.—Annual reception—members and guests.

7:30 p.m.—Annual dinner dance—members and guests.

SUNDAY, FEB. 12

12 noon—Get-Together Brunch—members and guests.

Address by 1961 president.

"Value of Association Today and for the Future"—Harry Alter, ARW past president.

2:30 p.m.—Annual meeting—members only.

7:30 p.m.—Roaring 20's Party—members and guests.

MONDAY, FEB. 13

10 a.m.—1961 board of directors meeting.

Paragon--

(Continued from Page 1, Col. 5)

quoted as saying the acquisition would involve about $6,370,000 of A.M.F. common stock. Specific terms are subject to approval by Paragon stockholders at the annual meeting Jan. 27.

Paragon manufactures time controls and switches, including timers for automatic defrosting of commercial and household refrigerators.

A.M.F. is a major producer of special automatic and semi-automatic equipment for a variety of industries. It is perhaps best known for its "Automatic Pinspotters" and other bowling alley equipment.

Paragon will be operated in Two Rivers as a subsidiary of A.M.F. under its electrical products group, with George J. Platt continuing as president.

ASHRAE Meeting--

(Continued from Page 1, Col. 2)

and a symposium on ventilation will wind up activities on Thursday morning. In all, 16 formal papers will be presented at the four technical sessions.

Two forums will be conducted on Monday, Tuesday, and Wednesday afternoons.

ASHRAE has scheduled a welcome reception for 3 p.m. Sunday, a welcome luncheon Monday noon, and its cocktail party and annual banquet for Tuesday evening.

A tour of the Dresden nuclear power station and a theater party are set for Wednesday afternoon. A visit to the Argonne Laboratory is planned but no time has been specified.

Detailed technical program will appear in a later issue.

Arthur G. Sutcliffe Dies

CHICAGO — Arthur G. Sutcliffe, 79, who had been chief engineer for Ilg Electric Ventilating Co. for 32 years before his retirement 13 years ago, died recently in his home in Park Ridge.

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At Viking — one thing is certain — the customer's requirement is "king". Everything — men, machines and equipment — must step along to meet the schedule. And if it takes a Rolls Royce and executives in top hats to keep things moving, tube will be delivered on time. Viking is another word for "dependability".

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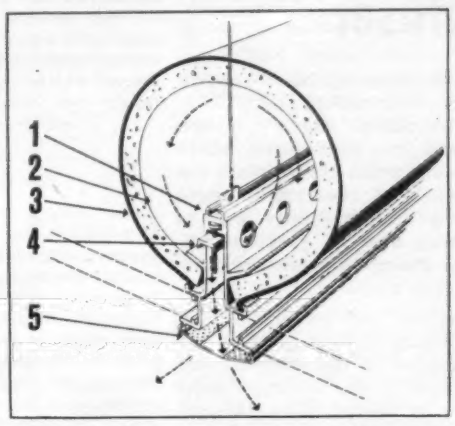
The 1937 Phantom III, 12-cylinder Rolls Royce is a Classic. Formerly belonging to the Lord Mayor of Kingston-on-Hull, it is now in our service. Viking personnel, however, drive American made cars.

'Acousti-Flo' Ceiling Air Distribution System Delivers Low Velocity Air to Room

FIBERGLAS ACOUSTI-FLO SYSTEM was used to introduce low-velocity conditioned air into this conference room. Air distribution system combines with and supports a luminous and acoustical ceiling.



DRAWING SHOWS basic parts of the new Fiberglas Acousti-Flo System: (1) The bar, (2) the air supply tube, (3) the jacket, (4) the damper, and (5) the bar cap.

TOLEDO — "Fiberglas Acousti-Flo System," a new low-velocity method of introducing conditioned air into a room, has been developed by the Owens-Corning Fiberglas Corp.

This air distribution system combines a Fiberglas air supply tube with a perforated metal bar diffuser which distributes the air evenly throughout a room, the company said.

"The system was designed to combine the positive delivery of air through self-insulated tubes with full wall-to-wall diffusion which practically eliminates 'dead air spots,'" it was stated. "The result is a low cost, attractive ceiling installation. Air delivery through this new system is uniform and is easily controlled by adjusting the continuous dampers."

The Acousti-Flo System also functions as a support for a variety of ceilings including the luminous type. Therefore, it makes possible a complete ceiling "package" installation which will provide built-in air distribution, noise control, thermal efficiency, and lighting, the company said.

As illustrated, the basic parts of the Acousti-Flo System are (1) the bar, (2) the air supply tube, (3) the jacket, (4) the damper, and (5) the bar cap.

"The bar supports the Acousti-Flo air supply tube, the suspended ceiling, and distributes air uniformly along its entire length," the company explained.

"It is a semi-hollow aluminum extrusion, 15 ft long, which is hung directly from the structure by wire or pencil rod hangers, 6 ft on center or as required by local conditions. A sliding hanger clip supports the system and provides a means for leveling the bar.

"The Fiberglas tube conveys the conditioned air. It is insulated to reduce heat loss or gain, and absorb air noise. It is available in 3-ft long sections of inside diameters up to 14 in. Wall thicknesses are ¾ in. for sizes 4 in. through 10 in. and 1 in. for 12-in. and 14-in. sizes.

"Exterior protective jacket and vapor barrier is a .012-in. thick aluminum alloy sheet. It is furnished with turned up flanges on both longitudinal edges that snap into lips on the bar. End joints are lapped.

"An extruded aluminum channel installed within the Acousti-Flo Bar controls the air flow from the duct to the bar. Screwdriver slots in the supporting damper bolts allow easy raising and lowering for minute adjustment.

"A perforated, rolled aluminum section designed to snap off and on the Acousti-Flo bar for cleaning or for access to the dampers. The cap is standard anodized aluminum finish and can be furnished in color."

Use of Cooling In City, Suburban Buses Growing

BELOIT, Wis. — Demand for air conditioning systems in GMC Truck & Coach Div.'s new city and suburban buses has surpassed all expectations, a GMC senior project engineer told the Rockford-Beloit Section of the Society of Automotive Engineers here recently.

Karl Schuster, air conditioning expert in GMC's Engineering Div. at Pontiac, Mich., said over 35% of the 3,500 new city and suburban bus models built by GMC in the past 15 months have been ordered with air conditioning.

"While air conditioning is a standard item in intercity buses," he explained, "it has never before reached this level of popularity in coaches used in city service or for short suburban hauls."

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Armstrong Cork Finds

Acoustical Mineral Tile Suspended Ceiling Makes Economical Air Diffuser

LANCASTER, Pa. — When the Armstrong Cork Co. decided to air condition its general office building here, a unique system of equalizing air diffusion and temperature was developed employing the company's own ceiling products, the firm has reported.

The air conditioning plan for the four-story, 220,000-sq ft structure incorporates the use of perforated mineral tile suspended ceilings for the dual purpose of acoustical treatment and air diffusion.

The system was made possible by drilling small holes through various types of mineral acoustical materials to allow air to enter a room at equal pressure and temperature through these small openings in the ceiling surface.

Economical To Install

"Intended mainly as an experiment to test the efficiency of perforated mineral tile ceilings as air diffusers, the system proved highly economical to install," the company said.

"Besides providing acoustical treatment and improved air circulation, it saved the company thousands of dollars by eliminating standard diffusers, and a considerable amount of ductwork. Only a duct stub was required in each room to discharge the conditioned air into the plenum space above the suspended ceiling.

"The concept of using this plenum space as a 'pressure chamber' for conditioned air is not new. Neither is the idea of diffusing air through the ceiling. However, Armstrong's general office is the first installation to employ these concepts using standard, through-perforated mineral tile ceilings as air diffusers.

"The advantage of this, first of all, is that the diffuser holes in the tile are not noticeable, since they fit in with the overall design pattern of the ceiling. Secondly, it effectively eliminates noise, drafts, and 'cold spots.' "

Eugene D. Scribner, a member of Armstrong's Central Engineering Dept., is credited with having first conceived the idea. He admits, "Our original intention was to try this concept with a metal pan type of ceiling. However, since Armstrong manufactures the mineral acoustical tile, and merely markets the metal pan type, it was decided to experiment with the mineral tiles for the general office application.

"Now after eight months of successful operation, we are convinced that similar type systems are practical for a wide variety of air conditioning projects, both in new and remodeled buildings."

Presently in use in the general office are two different incombustible mineral acoustical minerals—"Full Random Minatone," and "Fissured Travertone"—both manufactured by Armstrong.

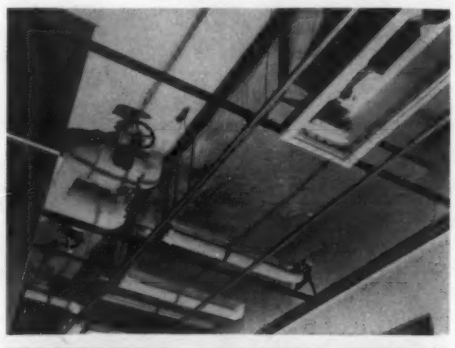
The small air diffuser holes going through these materials reportedly have very little effect on their acoustical qualities. In fact, as Scribner points out, the individual offices are generally quieter since most of the noise from the outside air conditioning is absorbed by the ceiling.

The new system also made it possible to lower the ceilings in most areas of the building, providing a more attractive and modern appearance, it was stated. The original plaster ceilings were approximately 12 to 18 in. higher than the present ceiling level.

In the general office system, air is recirculated with 25% new air added. The air is discharged into the rooms where individual room thermostats are located. The thermostat regulates a booster heater coil in the stub duct to provide individual room temperature control.

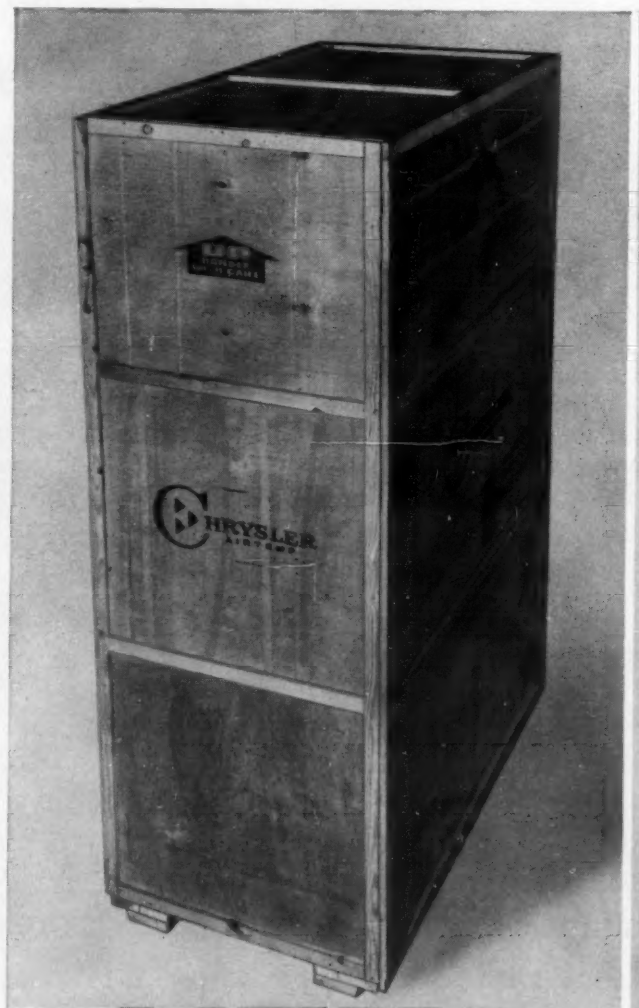
The cool air leaves the central cooling system at 58°F and is warmed to the desired temperature by the booster heater before it passes down through the ceiling.

The hot water heating system used in the building for



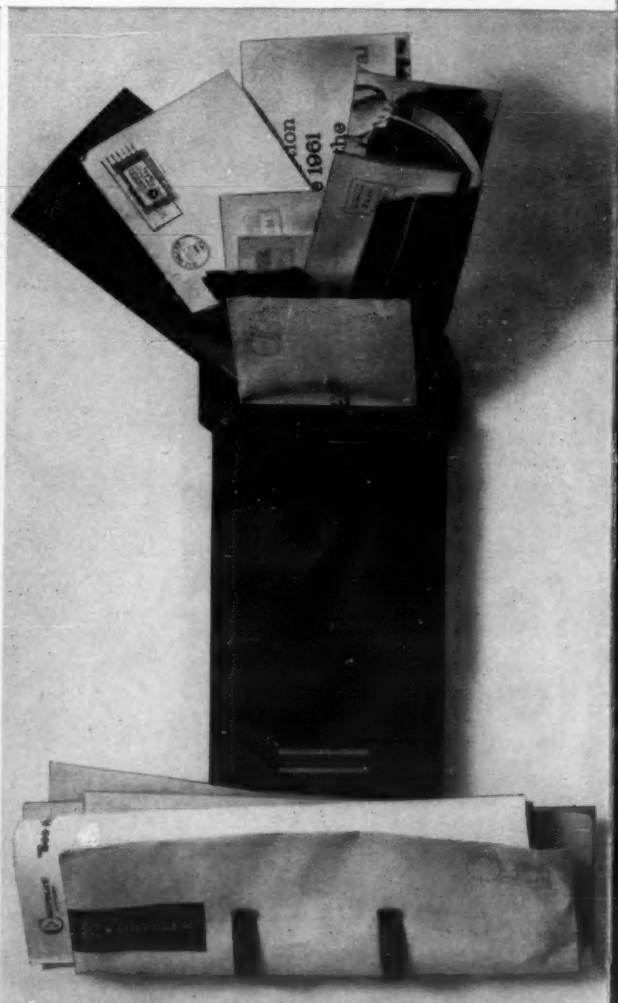
CONDITIONED AIR runs through this main corridor duct in the Armstrong Cork Co. general office building at the rate of 900 fpm. Smaller stub ducts carry the air into individual offices where it is heated to the desired temperature, then diffused at low pressure through the mineral tile ceiling.

STUB DUCT in each room is equipped with a reheat coil which warms air to desired temperature before it is discharged into the plenum space above the perforated acoustical tile ceiling. Average air flow through the ceiling is 1.56 cfm per square foot representing a pressure of .005 in. of water.



NEW
PACKAGED PRODUCTS

Three new large capacity air-cooled condensing units, new 22,000 BTUH air-cooled condensing unit, plus a new heat pump...they've all been added to the Chrysler line for '61. Chrysler has long been known for the most complete line of packaged air conditioning products in the industry. Now you have even greater freedom of choice from 22,000 to 420,000 BTUH. Your Chrysler Distributor has all the data now.



NEW
DIRECT MAIL PROGRAM

You'll capture a bigger share of your residential add-on air conditioning market with this new low-cost, high-powered direct mail program. Choose from two complete 3-piece packages . . . each designed to hit your best prospects . . . at the best time for profitable early-season sales. Now's the time to get in on the program. Want more information? Call your Chrysler Air Conditioning Distributor today.

4 NEW REASONS WHY YOUR FUTURE IS MORE

ELABORATE DATA CONTROL PANEL records dew point of conditioned air, pressure through air filters, chilled water temperature, and fan discharge temperature in each of the 19 separate air supply systems in the building. It enables one man to keep constant watch over the air conditioning, and to detect malfunctions as soon as they develop.

FISSURED MINERAL acoustical tile, partially perforated to allow air to pass through, is installed in a standard suspension system. During installation of air conditioning, most ceilings in the building were lowered 12 to 18 in. to accommodate the diffusion system, and to provide a more modern appearance.

'Dual Duct' Air Mixing Units Play Role In Renovation of U. S. Capitol

NEW YORK CITY—Buensod-Stacey "Dual Duct" air mixing units have been ordered for the $10 million face-lifting operation being performed on the U. S. Capitol, J. W. Kreuttner, Buensod vice president, announced here recently.

The order has added meaning for Kreuttner, who served as a page in the U. S. Senate in 1917, and again in 1919, and walked through the area being renovated many times carrying messages between the Senate and House chambers.

The renovation moved the east facade of the Capitol out 31½ ft and will provide additional office space, committee rooms, and two new reading rooms for the legislators. The Dual Duct units will distribute air to the newly-created space.

"The high velocity dual duct system being installed in the Capitol consists basically of a central station air conditioning plant supplying air to two duct systems, one being supplied with cold air and the other warm air," it was pointed out.

"The two ducts supply all parts of the building and from them connections are taken to mixing units located at each zone to be controlled. A thermostat in the zone proportions the amount of warm and cold air being mixed and fed to that zone, resulting in a constant temperature irrespective of changes in heating and cooling requirements.

"Each mixing unit has a constant volume device so that under all conditions the same amount of air is supplied to the zone."

All work on the addition is being supervised by the Architect of the U. S. Capitol, J. George Stewart. Consulting engineer is Guy B. Panero Co. of New York. Mechanical Contractor is William H. Singleton & Co., Springfield, Va. The Buenson-Stacey sales representative handling the order is the Lancaster & May Co. of Baltimore, Md.

Honeywell Booklet Covers Advantages Of School Cooling

MINNEAPOLIS — The economic and educational advantages of air conditioning schools are discussed in a new booklet published by Minneapolis-Honeywell.

Entitled "You can Air-Condition Your New School—and Cut Building Costs," the booklet gives case histories of four new schools.

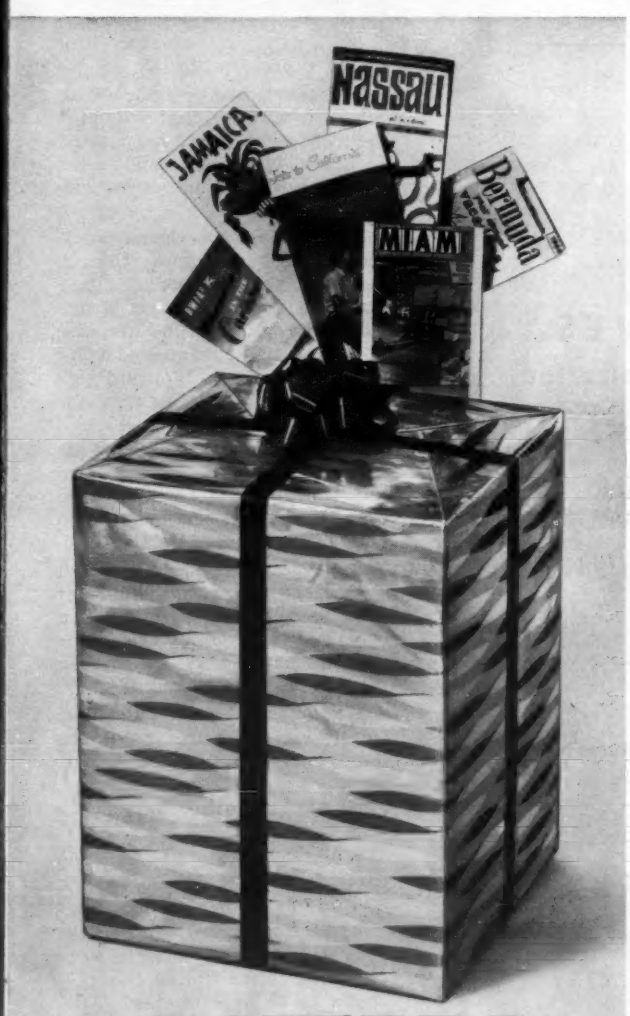
In one case, plans for a conventional school without air conditioning were compared with those for a compact air conditioned school. Even though both met the same educational requirements, studies showed the air conditioned school would cost $50,000 less than the conventional school.

This was due, the booklet explains, to the fact that the compact air conditioned school, with the same area as the conventional school, substantially reduced wall areas, windows, and mechanical and electrical work.

The 20-page booklet is available without charge from the Commercial Div. of Minneapolis-Honeywell, 2747 S. Fourth Ave., Minneapolis 8, Minn.

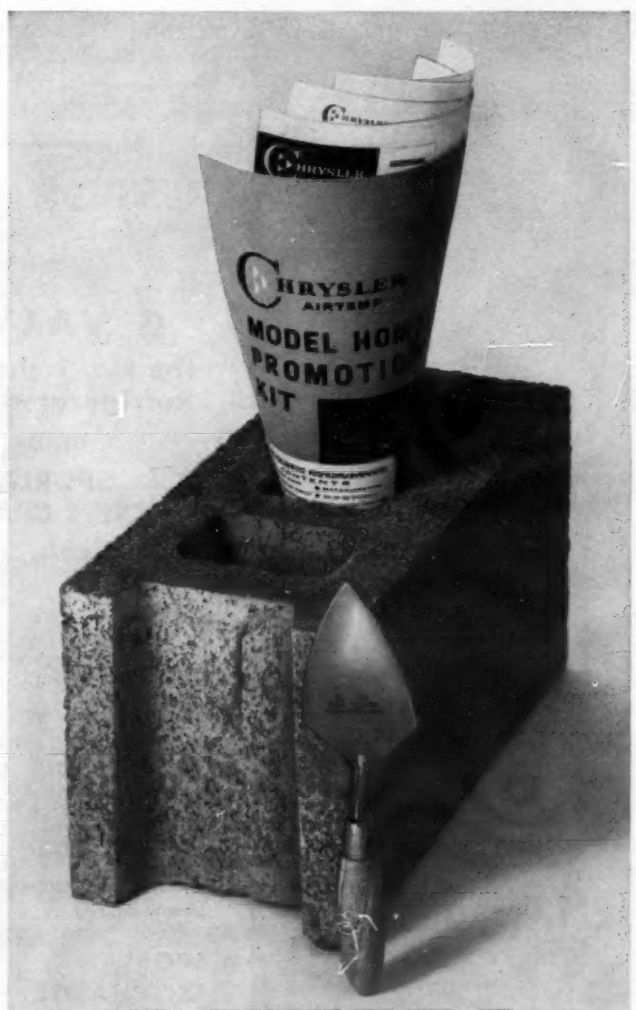
Charles L. Dugan Dies Suddenly

ST. PETERSBURG, Fla. — Charles L. Dugan, who was associated with the Krauss Air Conditioning Co. and the consulting engineering firms of Reynolds, Smith & Hills and Charles T. Healy, died suddenly recently. He was past secretary of the Florida West Coast ASHRAE.



NEW
SALES INCENTIVE PROGRAM

Everybody wins with Chrysler in '61. For every capacity-rated ton of Chrysler heating and air conditioning equipment you sell, you earn prize points. They're redeemable for the handsomest assortment of merchandise and most luxurious trips you've ever seen. Regardless of the size of your business, you cash in every time you sell Chrysler. Call your Chrysler Air Conditioning Distributor for details.



NEW
MODEL HOME PROMOTION KIT

Want to cash in on multiple-unit furnace and air conditioning sales to project builders? Chrysler's new Model Home Promotion Kit gives you solid support. The Kit has everything needed for selling in a model home. Builders will love it—because it helps move their houses faster. And so will you—because it's a real clincher to your selling story. Ask your Chrysler Distributor to show you a sample.

PROFITABLE WITH CHRYSLER AIRTEMP

Chrysler Corporation, Airtemp Division, Dept. C-11, 1600 Webster Ave., Dayton 4, Ohio

Outside Dope

By GEORGE F. TAUBENECK

Learn to live and laugh — thus delay your epitaph

(Continued from Page 1)

subsidiaries in England and Canada, and by 19 licensees in 17 different countries.

No swivel-chair executive, Wilcox has circumnavigated the globe many times—chalking up an estimated million and one-half miles.

His travels have taken him to nearly every country in the world except Russia and Czechoslovakia. On one early trip he was gone continuously for 11 months, of which three and one-half months were spent on steamships.

His first-hand knowledge of economic conditions and market potentials in various countries often was a decisive factor in the licensing of a foreign company to manufacture Kelvinator-designed products.

He Came to Stay

Wilcox made his first trip overseas a long one. He went to England in 1926, and remained there for one and a half years to organize Kelvinator Limited of England.

During this period he made frequent trips throughout Europe to develop Kelvinator business in other countries.

Introduction of electric refrigeration in England solved a unique problem, incidentally.

London butchers were forced to auction left-over meat each weekend because it could not be safely preserved in ice for two days. Cost of electric refrigeration equipment was amortized quickly by eliminating the need for costly auctions.

Shortly after his return to Detroit headquarters, he was assigned to work on the reorganization of a Canadian subsidiary, and to develop commercial refrigeration business in that country.

In 1930, Wilcox was made associate manager of the export division. A few months later he went on an extended trip which took him over a large section of the world.

He worked with distributors in such countries as Australia, New Zealand, India, China, Japan, the Philippines, Hawaiian and Fiji Islands.

This development responsibility included sales, service, engineering, and financial counseling and direction.

In 1931, Kelvinator Australia was established. Today it flourishes as the company's oldest—and most prosperous—active manufacturing licensee.

After 35 years of world travel, Wilcox believes that the most important asset in international trade is the men who represent a company.

These men must be "balanced individuals," he insists. "Balanced" means the sum total of a man's upbringing, beliefs, tolerance quotient, and natural friendliness.

He and his family plan to continue living in Birmingham, Mich., home of many Detroit executives, while his sons attend schools there.

Timothy, 14, is in junior high, and Larry, 18, is a senior looking forward to attending Ferris Institute in Big Rapids, Mich.

Random Memories

While hopscotching the world, Ed Wilcox often found himself in many strange lands, undergoing peculiar and sometimes dangerous circumstances.

He learned the hard way to keep his seat-belt fastened while flying from Buenos Aires to Santiago, Chile, for instance.

In those days airplanes did not have the power to fly over high obstacles, and pilots were needle-threading through passes in mountain ranges.

On this particular trip, head winds were strong, and the pilot was forced to zoom around in tight quarters. Wilcox was knocked unconscious from the bounce he took against an overhead rack.

He and his wife, Esther, were in Buenos Aires on December 7, 1941. The news of Pearl Harbor seemed more unreal in that country than it probably did to many Americans in the U. S. Getting home safely presented a problem, too.

Big ocean-going liners were delaying departures so that their exteriors could be painted a camouflaging gray—but even this precaution didn't seem adequate.

Meanwhile, Americans were jamming the airlines to get home—so the Wilcoxes didn't arrive in Miami until six weeks later. They didn't mind arriving there during a cold spell, despite the fact they had only lightweight tropical clothing.

Wilcox failed to take a hint from a British Army colonel on the proper way to cross the Great Indian Desert, on a trip from Karachi to New Delhi.

Air conditioning was provided by a large tub with a chunk of ice in each compartment. An overhead fan which blew air over the ice did little to lessen the intense heat, though.

Wilcox consistently declined the proffered drinks from the colonel who shared his compartment on the train. The officer, meanwhile, killed his bottle and passed out.

When he came to, the trip through the desert was over, and he offered this advice:

"Young man, you will find out that there's only one way to cross the Great Indian Desert—that's to be unconscious!"

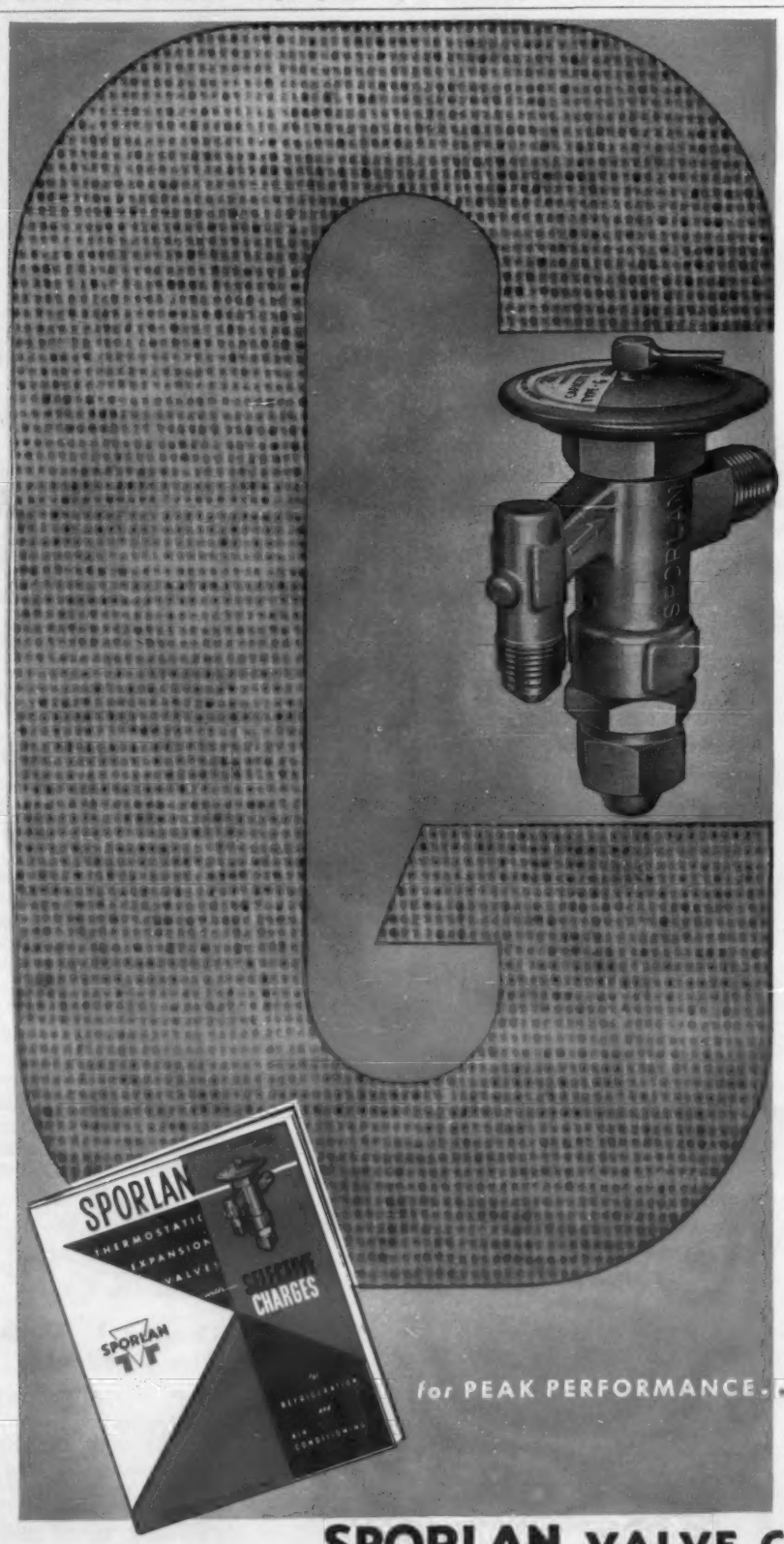
In Singapore early in 1930, Wilcox asked the service manager for the local Kelvinator distributor to brief him about customer complaints.

In the ensuing discussion the service manager mentioned one customer who had never complained. The two of them called on that remarkable fellow.

The latter was delighted to show them his refrigerator, which was located in the equivalent of a living room.

When it was opened they discovered it was full of books. The wealthy Singapore merchant had bought the refrigerator for "prestige," and had never connected or operated it.

NEWS readers are invited to write to the editor giving their opinions on any subject of interest to the industry.



SPORLAN

G VALVES...

the No. 1 choice for Refrigerated Cases,

utilize

SPORLAN SELECTIVE CHARGES...

famous since 1934

SPORLAN "C" CHARGE
for Suction Temperatures Above ZERO

SPORLAN "Z" CHARGE
for Suction Temperatures Below ZERO

SPORLAN "X" CHARGE
for Extremely Low Temperatures

More engineering features are incorporated in the Sporlan G valve than in any other valve... yet the basic design has always been sound... and has never been changed.

Modifications will always be made, but only to improve the valve... never to change it.

on all refrigeration applications, send for new bulletin 10-10 today ...then order your G valves from your friendly Sporlan Wholesaler.

SPORLAN VALVE COMPANY

7525 SUSSEX AVENUE ST. LOUIS 17, MISSOURI

EXPORT DEPT. 85 BROAD STREET NEW YORK 4, N. Y.

Develop Methods To Provide Internal Overload Protection for Hermetic Motor-Compressors

ATTLEBORO, Mass. — Improved motor-compressor overtemperature protection, particularly for compressors that have in the past used dome-mounted controls, is now made possible with internally-mounted protectors, and motor winding thermostat-supplementary overload systems recently developed by Texas Instruments, Inc., Metals & Controls division.

"Klixon" hermetic protectors, sensitive to both current and temperature, "can be internally mounted inside the compressor shell, adjacent to the windings, so as to follow the winding temperature closely and protect to the capacity of the motor," it was stated.

"An example of what created a demand for such a device was the introduction of hermetic motors to air source heat pumps. A new range of operating conditions was introduced which complicated the degree of protection that can be provided with dome-mounted overheat protectors.

"Several design features, which are different from those used on regular open-type protectors, are used in the construction of hermetic protectors. The disc and contacts must be isolated from the refrigerant atmosphere where arcing contacts would cause a breakdown in the gas. The terminals come from the hermetically sealed can through glass-to-metal insulating seals and the can is welded to the terminal header by a precision method to insure a leak-free design."

A variety of sizes and capacities are available to cover a range of compressor ratings from ½ to 5 hp, single phase, and 2 to 7½ hp, three phase.

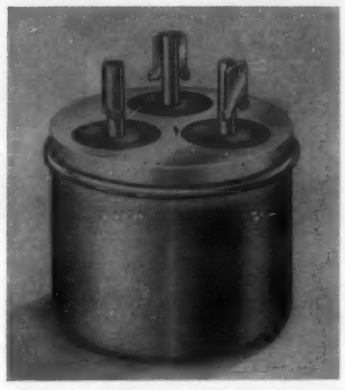
Also recently developed for internal mounting in larger horsepower motor - compressors —through 15 hp—is the Klixon 7895 motor winding thermostat, a temperature responsive device, small enough to be embedded in the motor windings.

"The 7895 closely follows winding temperatures under running conditions of overload," it was pointed out. "When used with the new Klixon supplementary overload, an automatic, disc-type, current-responsive device, the system gives complete running and locked rotor protection.

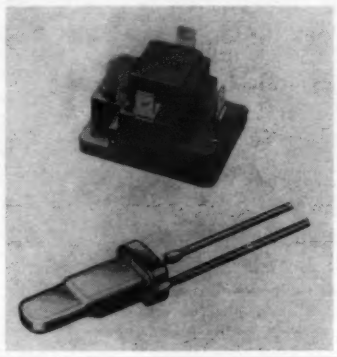
"During locked rotor operation, the supplementary overload will cycle several times until the motor winding thermostat responds to the winding temperature and then the thermostat will take over as the controlling device.

"When the line current passes through the disc of the supplementary overload, the disc does not break line current; rather, it causes a set of bridging contacts to open. These are connected in series with the motor winding thermostat and also with the coil of the magnetic contactor. When the contact coil circuit is open, it will break the motor line."

Complete technical data on the new methods available from the manufacturer.



KLIXON hermetic overheat protectors for refrigeration compressors are mounted inside the compressor shell to follow winding temperature closely.



KLIXON hermetically-sealed motor winding thermostat and current-responsive supplementary overload system for internally protecting hermetic compressors through 15 hp.

Shreveport Issues 93 Nov. Permits

SHREVEPORT, La. — During November, the city's Air Conditioning Dept. issued 93 permits representing a total equipment and installation cost of $323,155, it was reported by Clyde Juneau, air conditioning inspector. The permits cover air conditioning, heating, and refrigeration.

The November total compares with 107 permits issued in October for installations costing a total of $224,185. November permits were for:

Residential: year-round air conditioning and heating—18; heating—43; replacements—3.

Commercial: year-round air conditioning and heating—12; air conditioning—1; heating—5.

Alterations and/or additions —6. Refrigeration—5.

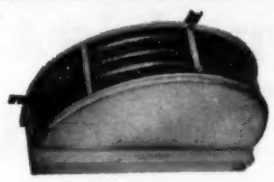
The largest commercial permit of the month, amounting to $72,300, was issued to Shreveport Plumbing Co. to install air conditioning and heating for Caddo Parish School Board. The largest residential permit was issued to Arkansas-Louisiana Gas Co. for a $3,620 air conditioning and heating installation for Bronner-Simon.

Fraker Covers Rockies For Sherer-Gillett

BOULDER, Colo. — M. R. (Montie) Fraker has been appointed manager of the Rocky Mountain zone for the Sherer-Gillett Co. Fraker has done field engineering for the firm during the past five years.

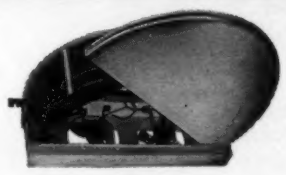
NEWS readers are invited to write to the editor giving their opinions on any subject of interest to the industry.

TENNEY

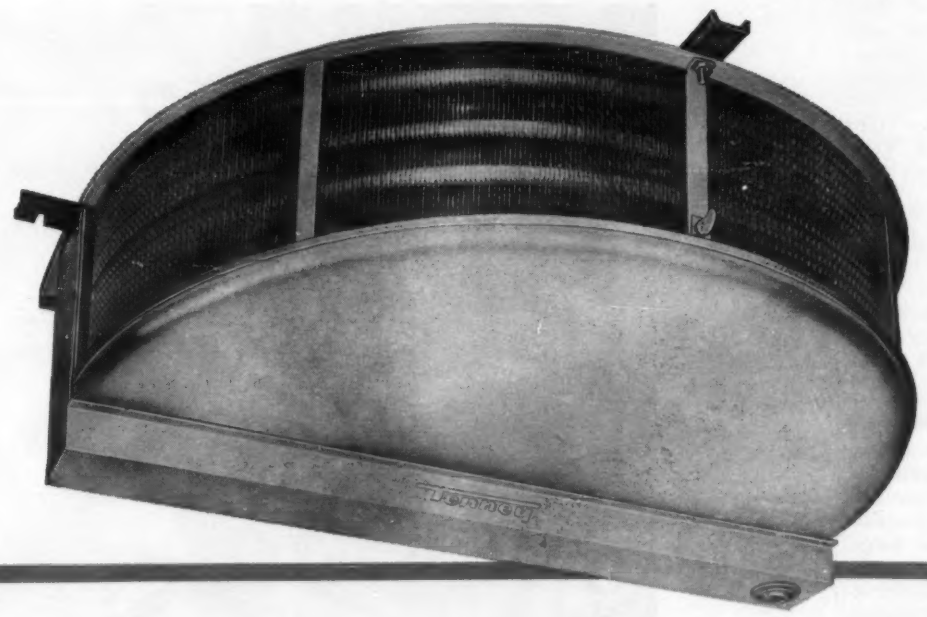


half round...

twin fanned...



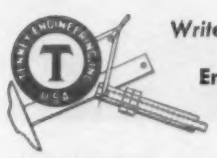
easy to service



Tenney TW and TWF unit coolers with ALL-ALUMINUM HOUSINGS!

From 3,700 to 17,000 BTU

More cooling power per square inch and most convenient installation with Tenney's TW and TWF unit coolers than with any other comparable units—*and now they're built of lightweight, rustproof aluminum.* True half round design insures maximum air distribution. It hugs up tight against the ceiling and its unique design allows maximum product storage. Service is so simple—flick off a thumb screw and the entire unit is open, with all parts within easy reach. You never disturb existing refrigeration, electrical or water drain lines! And in case of emergency, *one* of the unit's two fan-and-motor combinations can maintain safe temperatures until help arrives. Standard filters are optional on both units. Write for literature and technical data on these new all-aluminum TW and TWF unit coolers today.



Write for Bulletin 104-54

Engineers and Manufacturers of Refrigeration and Environmental Equipment

Tenney ENGINEERING, INC.

1090 SPRINGFIELD ROAD, UNION, NEW JERSEY • PLANTS: UNION, NEW JERSEY AND WILMINGTON, N. CAROLINA

'Engineering Excellence' To Be Feature Of York Promotion Program for '61

YORK, Pa.—A wide-ranging advertising and sales promotion program with many new and "different" aspects, and including prize contests for both consumers and dealers, has been planned by York Div., Borg-Warner Corp., for 1961.

The program carrying the theme "Get the Top Bonanza with York" was introduced to York distributors in a presentation directed by Todd L. Owens, York Div. advertising and sales promotion manager, and includes the following principal and unusual features:

Engineering excellence will be emphasized in consumer advertising, with the theme used in national advertising centering around "Balanced Cooling." A big blast in the national advertising effort will be an 8-page insert planned for the May issue, *Coronet* magazine.

SHOWERED in play money, this is a typical York distributor and dealer reaction to the company's Top Bonanza Casino Party kit, made available by the firm for dealer meetings. The kit contains posters, streamers, hats, play money, gaming devices and all materials needed to stage an exciting Top Bonanza Party.

TODD L. OWENS (seated) advertising and sales promotion manager for the York Div. of Borg-Warner Corp. with Kenneth J. Thompson (standing) sales promotion manager, working out the details on the firm's "Spirit of '76" promotion, slated for May, June, and July.

Dealers Will Get Brief Case Full of Parts

Also carrying along the idea of engineering excellence, a brief case complete with actual room air conditioner parts will be furnished dealers, and sales education for dealers will put emphasis on "comparative selling."

Since 1961 is York's 76th anniversary the company will have a "Spirit of '76" promotion which will be built around a prize-trip plan for consumers who become eligible for trip prizes by calling upon a York room air or residential air conditioning dealer.

Feeling that many dealers are weary of long, solemn meetings, York is providing the plans and accessories to "liven up" its 1961 dealers meetings in the form of a "Bonanza Casino Party" to which wives will also be welcome.

Strong Trade Program

York also plans a strong trade program, said Owens, to solidify and advance its position in the industry. This program will be kicked off by a large, book-type insert designed to give air conditioning and refrigeration dealers a good picture of the entire York line of packaged air conditioning equipment, along with a brief description of supporting sales programs.

Benefits of 'Balanced Cooling'

In the national advertising program, emphasis will be placed upon the claimed consumer benefit resulting from "balanced cooling." In addition to the theme and benefits, national consumer ads will be tied together with a gyroscope symbol and large illustrations. Insertions are planned in mass circulation publications. Reprints and dispensing boxes will be available to dealers to merchandise the 8-page insert in *Coronet*.

The "Spirit of '76" promotion will have patriotic as well as anniversary tie-ins, and will begin on Decoration Day and end on the Fourth of July. On a national basis, York will offer a grand prize of a trip to the nation's three capital cities: York, site of the first capital; Philadelphia, and Washington, D. C. In addition to getting all expenses paid on the trip, the first prize winner will also receive $2,000 for miscellaneous expenses. Three second prize winners will receive York central residential air conditioning systems, completely installed. And, 76 third prize winners will receive a room air conditioner.

All first, second, and third prizes will be awarded on the basis of a drawing, to be handled by an independent contest organization. To enter, members of the public need only call on their nearest York room air or residential air conditioning dealer and fill out a card.

Fourth prizes will consist of

Mr. Val Smith, mechanical contractor for E. A. Hinrichs Co., Lincolnwood, Illinois, says:

"On this three-zone air Honeywell went out

Mr. Val A. Smith in the showroom explaining Honeywell Control System to Max J. Palmer, President of E. A. Hinrichs Company, distributors of fine china and silver.

a set of Presto electric appliances, and will be awarded by each participating dealer. The company plans to kick off the "Spirit of '76" promotion with a two-page color spread in the *Saturday Evening Post.* Key city newspaper tie-in ads are also being planned.

To relieve the tedium of dealer meetings, the "casino party kit" includes all the materials necessary to dress up the party room as well as gaming devices and play money. Dealers will be given an ample supply of play money when the arrive. A short business and order-taking session will provide a change-of-pace. At the end of the evening, dealers and their wives will bid for prizes with their "winnings," the prizes being auctioned off by the distributor.

The expense-paid incentive trip this year is called the "Bermuda Ball" with dealers earning the trip by purchasing specified amounts from York.

Other promotion plans, as presented by Owens, include a "free filter" promotion on room air conditioners that offers free filters for five years to room air conditioner purchasers, a "sock heat pump" promotion designed to bring prospects to the dealer's store, a "melt-a-thon" promotion based on customers guessing how long it will take a ton of ice to melt, a "timer" promotion that offers an automatic "on-off" timing device with each room unit.

For central residential type units there is an "Air Conditioning Now" off-season promotion, and a "card" deal that offers a prospect a deck of playing cards for replying to direct mail pieces, and a "buyer's bonus" promotion.

For commercial packaged equipment, York plans a series of factory-controlled direct mail programs to architects, consulting engineers, mechanical contractors and to multi-space prospects, defined by the company as large plants and offices where a series of packaged units can provide an economical, efficient answer to air conditioning needs.

A complete prize incentive program is being developed for wholesalers handling York condensing units, which will include an array of gifts from which a wholesaler's customer can select a prize of his choice upon the purchase of condensing units.

Toledo Contractors Elect

TOLEDO—L. B. Walbolt of Radiant Fuel & Heating Co. has been elected 1960 president of the Toledo Heating & Air Conditioning Contractors Association.

Glass Fiber Duct Helps Solve 'Quiet' Problem In Building's Transformation

WORKER installs G-B Duct in studios of television station KWY in Cleveland. Use of the G-B Ducts played role in the campaign to quiet the first three floors of the East Ohio Gas building which were already air conditioned.

CLEVELAND — Converting the first three floors of the East Ohio Gas building here, into studios for television station KYW posed many problems, not the least of which was noise abatement.

From floor to ceiling the traditional elegance of the 46-year-old building quickly gave way to the acoustical treatment needed to create proper sound conditions for televising

Walls of the studios are now double concrete with an 8-in. air space. Windows of control rooms around the studio have two sheets of glass set inches apart, one ⅜-in. plate glass, the other ¼ in., so they can't vibrate in harmony. Studio door frames and jams are heavily gasketed to cushion their closing and throttle room-to-room sounds.

However, the great concern in the acoustical treatment in the building was over the workings of the air conditioning. Here, a new glass fiber duct (G-B Duct) played an important role in the television station's "quiet" campaign, it was reported.

The building had a $400,000 air conditioning installation barely five years old. But three more duct systems were needed to serve the new operation of the radio station, television studios, and the general offices. Counting the main system, there would be four distribution systems in all.

The use of lightweight, easy-to-apply G-B Duct, a round, prefabricated glass fiber duct, solved the acoustical problem for the A. D. Morton Co., air conditioning installer, according to Gustin-Bacon Mfg. Co.

"G-B Duct, being made entirely of glass fibers, holds sound to the minimum," it was stated.

"Now station KYW in Cleveland has solved the problems of sound transmission through walls; vibrating windows; slamming doors, and a great many other acoustical problems—not the least of which is noise from the enlarged air conditioning system."

NEWS readers are invited to write to the editor giving their opinions on any subject of interest to the industry.

conditioning system of its way to be helpful"

E. A. HINRICHS BUILDING
Designer and Builder: J. Emil Anderson & Son, Inc.
Mechanical Contractor: V. A. Smith Company

Large job or small, Honeywell is ready and able to handle any control problem.

"During our 51 years experience in the business," says Mr. Smith, "we've found that many times the small air conditioning job presents some of the toughest problems. But the size of the job has never prevented our friends at Honeywell from being 'johnny-on-the-spot' when we needed them.

"On the E. A. Hinrichs job, we were concerned over the fact that the showroom has 50 large spotlights. These spots produce plenty of heat. But the man from Honeywell checked out the situation and made his recommendations; the three-zone electric system has functioned perfectly from the day it went into operation.

"Mr. Palmer, the president of E. A. Hinrichs, is so pleased with the job, that he's ordering some additional work right now. It'll be Honeywell controlled, too. And that's on his recommendation as well as ours."

You get more to work with when you work with Honeywell. Easily installed controls, accurate specifications, prompt delivery and excellent supervision are the advantages enjoyed by every contractor with Honeywell on his team. And, only Honeywell makes all three types of control systems—pneumatic, electric and electronic.

There are 112 conveniently located Honeywell offices across the nation. Call your local one for details. Or, write Honeywell, Dept. AN-1-175, Minneapolis 8, Minnesota.

Mr. Palmer and Mr. Smith inspect one of three Honeywell thermostats that control the temperature system in the E. A. Hinrichs Company.

Honeywell
First in Control
SINCE 1885

HONEYWELL INTERNATIONAL
Sales and service offices in all principal cities of the world.
Manufacturing in United States, United Kingdom, Canada, Netherlands, Germany, France, Japan.

They'll Do It Every Time

by

Jimmy Hatlo

OH, ARSON--WOULD YOU BE GOOD ENOUGH TO SHOW OUR YOUNG FRIENDS HERE THROUGH THE PLANT--THEY'RE SCHOOLMATES OF MY NEPHEW ICHABOD---
CERTAINLY, MR. BIGDOME, SIR--COME THIS WAY, LADIES AND GENTLEMEN--LOTS OF VERY INTERESTING THINGS TO SHOW YOU IN EVERY DEPARTMENT--WE'LL START HERE--I'LL EXPLAIN WHAT WE DO----
I WANT TO LISTEN TO THIS--I'VE BEEN TRYING TO FIND OUT WHAT WE'VE BEEN DOING SINCE I'VE BEEN HERE---
ARSON'S ALWAYS KNOCKING THIS JOINT--I WANT TO HEAR THIS REWRITE JOB HE'S GONNA DO---
ARSON WILL MAKE A WHOLE AFTERNOON'S JOB OUTA THIS--HE USTA BE A SPIELER ON A CHINATOWN BUS--
THE KIDS OUGHTA LIKE THE PAYROLL DEPT--THEY STILL PAY US OFF IN ARROWHEADS AND INDIAN BLANKETS!
PUTTING THE BEST FOOT FORWARD FOR THE KIDS WHO DON'T GIVE A DARN ANYHOO--
THANX AND A TIP OF THE HAT LO HAT TO E.J.K., KENNEBUNKPORT, ME.
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Exhibiting at a National Exposition Can Be Tediously Expensive

PRICE of exhibiting at industrial expositions has increased continuously, plaguingly, and even alarmingly in recent years.

Obviously it's a troublesome and unhappy situation when most exhibitors now are resigned to the fact that they will be overcharged for practically every service they need in order to do business in an exhibition hall.

Those who still place high value on "exposure" at an industrial exposition accept this dirty digit, and continue to showcase their wares in spite of excessive costs and conspicuous wastes. But they can tell you plenty of shocking stories about featherbedding and greedy gouging.

Conscientious citizens who do not succumb willingly to these pillories may exhibit once or twice, and thereafter refrain. Their numbers, like Abou Ben Adhem's tribe, are increasing.

Unless something is done about accelerating exhibition costs, and quickly:

1. High quality dramatic exhibits, the backbone attention-getters of all exhibitions, may disappear from the scene.

2. Expositions will be held less frequently.

3. They might even vanish altogether as a way of doing business in the U.S.A.

Causes of this appalling situation are many. Some are obvious, a few are difficult to detect, and too many are the result of failure to exercise normal business judgment. Among the readily apprehendable:

Neglect on the part of exhibitors to provide advance data on their actual requirements (an essential facet of minimizing costs). Necessity for meeting last-minute exhibitor requests is reflected in exorbitant installation costs demanded by overtime (or irregular hours) labor.

On the other side of the fence, excessive profit mark-ups in charges for labor and services by exhibition hall contractors evoke deserved complaints by exhibitors.

All too frequently, service charges are based on non-competitive contracts—secured through political connections—instead of postulation on actual operating costs.

Lack of well-defined work quotients and performance standards for exhibit hall labor also dimbulb and discomfort this too-frequently ugly picture.

Relatively few convention hall organizations maintain adequate (and ready) labor pools, or proper supervisionary personnel, moreover.

Transient labor obtained from union "hiring halls" often is incompetent, unruly, indifferent, and even rebellious—when faced with realistic supervision of their performance by exhibitor personnel (the men who pay those inflated bills).

Failure of municipal officials to prevent work stoppages caused by jurisdictional labor disputes is another headache to exhibitors.

Manifestly it is flagrantly unjust that a major city, which owns an exhibition facility worth millions of dollars, cannot or will not negotiate lasting (or even temporary) agreements governing the jurisdictions of the various unions which install exhibits.

But . . . that's Detroit's Cobo Hall handicap, Chicago's McCormack Place bogey, San Francisco's Cow Palace stymie, and New York's perennial problem.

In the meantime, a hallowed old commercial institution, the exhibition-convention-exposition, could be slated for extinction. Nowadays they seem to cost much more than they're worth.

When you're frustrated, don't feel you're a special victim. If you could take a "frustration survey" you would feel better, because everybody:

Puts time and effort into work which turns out to be useless; runs into several snags on any undertaking; finds his efforts undone by somebody else; gets further delayed when he is already late.

Can't find some indispensable tool or piece of paper when he's all ready to start a project; does a good job for which someone else is rewarded; loses out on something which was almost in the bag.

Finds an apparently simple task difficult to do; often fails to get what he wants; has his best-laid plans fall apart; now and then finds everything just too much for him.—*Vision.*

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AIR CONDITIONING HEATING & REFRIGERATION NEWS

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F. M. COCKRELL, *Founder*

'The Conscience of the Industry'

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From the Files of the News

25 years ago . . .

Glass air filters, for use in ventilating and air conditioning systems, have been developed by Owens-Illinois Glass Co. to purify the air diffused into a room so that walls and decorations no longer need to be stained with dust laden heat and relief is given to hay fever sufferers. . . . To aid in the packing of medicated Sucret throat tablets and candies, which stick together when damp, Sharpe & Dohme, chemists, have added Frick air conditioning equipment to their Sucret department; added bonus is the comfort cooling being enjoyed by the 50 workers in the department.

A proposed ordinance requiring all persons engaged in the installation and servicing of electric refrigeration equipment will be considered by the Detroit Common Council at a meeting later this month. . . . To interest commercial firms in air conditioning equipment, the Baltimore Gas & Electric Co. has issued a booklet titled, "Air Conditioning Serves Baltimore," with each type of the over 175 installations in the city pictured. . . . A new line of industrial air conditioner units, with or without distributing ducts, and designed to meet a wide range of industrial air cooling requirements, is being introduced by York.

A gilded horseshoe bar, coral leather walls, Frick air conditioning and Temprite beer cooling equipment are highlights of the recently completed Lounge Bar in Buffalo's Statler hotel. . . . During the first 10 months of 1935 installations of air conditioning equipment totaled 145 in the territory served by Pacific Gas & Electric Co., bringing the area total to 607.

Manufacture and sale of "Detroit" controls for electric refrigeration equipment will now be carried on by a separate division of Detroit Lubricator Co. . . . The Neisner Brothers 5 cents-to-$1 branch in Rochester, N. Y., reports a large volume increase in units and dollars a direct result of its recently installed Westinghouse air conditioning system. . . . An air conditioning installation problem was solved when shallow ducts were designed to fit in the area between the 28-in. wide concrete beams hung below hallway ceiling and the doorways' tops in the 100-ton system installed in the Shreveport, La. City Bank.

10 years ago . . .

The 10th International Heating & Ventilating Exposition, to be held in Philadelphia from Jan. 22 to 26, is slated to be the largest of its kind ever held. Of the 350 exhibitors, approximately 80 serve the air conditioning field directly and are expected to introduce a number of innovations. . . . A recent study made on packaged candies has shown that refrigeration will (1) lengthen shelf life, (2) maintain color, taste, texture, and (3) combat insect infestation.

According to Dr. T. L. Shipman, Los Alamos scientific laboratory, air conditioning is a "must" for atomic age industrial plants. Shipman cited the importance of minimizing doors and windows for protection, devising better methods of curtailing combustible materials, and creating super clean, dust free work area when radioactive materials are being used.

A new 21-story $9,000,000 office building now under construction in New York will be air conditioned with Carrier's conduit system, where conditioned air is distributed under pressure from a few central stations through small, space-saving conduits.

Modern methods for supplying pure, chilled water for restaurants were described in an article written by C. F. Hansel, Filtrine Mfg. Co.

Nine basic rules to assure success of a supermarket's self-serve meat department were outlined by a Phoenix, Ariz. market operator. . . . Installation of three 20-ton units to cool a 54-family apartment house in Miami Beach will be made by Airko Air Conditioning Co.

Wilcox Retires From Kelvinator Export Post

DETROIT—After 35 years of world travel, Edmund H. Wilcox, vice president of Kelvinator International Corp., has retired.

Wilcox joined the pioneer manufacturer of electric refrigerators many years before it was merged into Nash-Kelvinator, and into its present operation as a subsidiary of American Motors Corp.

"When he joined the Kelvinator Corp. in 1925, export sales were a trickle," it was noted. "Today, more Kelvinators are sold outside the United States than in the U. S.

"Ed Wilcox has been one of the key architects in the design and building of a worldwide appliance operation that stretches from Iceland to Zanzibar. There are nearly 300 distributors in 141 countries throughout the world. They are supplied appliances from the U. S., subsidiaries in England and Canada, and 19 licensees in 17 different countries. No swivel-chair export executive, Wilcox has traveled the world many times, chalking up an estimated million and one-half miles."

Woolman To Manage Export Sales for Mueller Brass

PORT HURON, Mich. — Wayne Woolman has been appointed manager of export sales for Mueller Brass Co., it was announced recently by A. C. Dappert, vice president in charge of sales.

W. Woolman

Woolman, who has been associated with the company since 1941, has been on the sales staff since 1953 and has served as assistant export manager for the past seven years.

$4 Million Nigerian Cooling Contract Goes To J. E. Schecter

NEW YORK CITY—The new African state of Nigeria has awarded a $4 million air conditioning contract to the J. E. Schecter Corp. of New York City for the air conditioning of office buildings, a theater, and bank in the capital city of Lagos, it was announced here.

Jack E. Schecter, president of the Schecter Corp., is now in Nigeria to establish a local office there and also to conduct a seminar on the practical application of air conditioning equipment in tropical areas.

Most of the equipment to be used for the Nigerian construction will be prefabricated in New York City. Schecter advised that the $4 million contract will also encompass training of native personnel, but that his firm will supervise all installations.

Cite Other Opportunities Abroad

Seek Information on Air Conditioning For 4 Cocoa Warehouses In Ghana

WASHINGTON, D. C. — The Cocoa Marketing Board in Ghana has asked the chief engineer of the Port of Tema to air condition four cocoa warehouses there, the Business and Defense Services Administration of the U. S. Department of Commerce, reports.

The chief engineer is making preliminary inquiries about industrial air conditioning equipment to cool the four warehouses, which are 400 ft long, 170 ft wide, and 25 ft high. Tenders will be issued by the government of Ghana.

Other recent export trade opportunities by the BDSA include:

In Iraq, Central Iraq Trading Co., W. L. L. is seeking commercial air conditioning units for large buildings. Address is P. O. Box No. 8, South Gate, Baghdad, Iraq.

In **Norway,** Alfsen og Gunderson, importing distributor and manufacturer's agent, desires residential and commercial air conditioning units. Address is 2b Prinsensgate, Oslo, Norway.

From **West Germany,** the trade magazine publisher Deutscher Fachverlag GmbH of Frankfurt am Main, is seeking names of U. S. firms which sell secondhand refrigerated food storage and display equipment.

According to the BDSA, the publisher was asked for such information by the manager of the working group of German cold storage chains. During a recent trip to the U. S., the manager of this group found evidence of a large surplus of this type equipment which could be of considerable interest to the German market.

In **Libya,** Zwana and Co., P. O. Box 106, Benghazi, indicates an interest in home appliances including air conditioners and refrigerators.

In **Ceylon,** United Electricals, Ltd., Yahala Building, Staples St., Colombo 2, is interested in expanding in the fields of refrigerated trucks, dehumidifiers, air conditioning equipment for automobiles, trucks, buses, and trains, and refrigeration for automobiles.

Reporting on the **Northern Nigerian** market, the American consulate in Kaduna believes there is a worth-while market there for under-dash automobile air conditioners adapted for smaller European cars, rotary drum evaporative coolers for car windows, and inexpensive automobile refrigerators.

The consulate points out that the climate in northern Nigeria is similar to that of the arid American Southwest. The uncomfortably low humidity nine months a year in most of the north seems to be lowered further by room air conditioners, the consulate notes.

The consulate suggests that interested American suppliers write directly to it rather than the large trading companies which handle more lines than they can represent adequately.

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BOHN-AIRE
means COMFORT
in any language...
in any season!
MODEL B-D for vertical floor mounting "in-the-space" or semi-recessed up to 3½".
MODEL B-V for vertical concealed floor mounting.
MODEL B-C with finished cabinet for "in-the-space" horizontal mounting.
MODEL B-H for horizontal mounting in concealed locations (plenum optional).
COMPLETE FLEXIBILITY... 4 ROOM CONDITIONERS IN 5 SIZES EACH
Quietly, dependably, BOHN-AIRE Remote Individual Room Conditioners provide year 'round comfort in apartments, motels, hotels, offices, hospitals... in any building with a central hydronic heating and cooling system. They are extremely compact with a slim 8½" width... available in concealed models or in attractive, durable cabinet styles... easy to install and service. Finger-tip push button control! Many optional accessories.
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Buy the known line... the BOHN line
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May Save $1,800 Yearly

Water-to-Water-to-Air Heat Pump System Squeezes Every Useable Btu from Water

By George M. Hanning

SOUTH BEND, Ind. — A water-to-water-to-air heat pump system designed to squeeze every usable Btu out of source water before dumping it may save the new Jefferson Medical Arts building here some $1,800 a year in operating costs.

The system is controlled not at the water input line, as is usually the case, but rather at the drain. Two separate modulating control valves on separate drain lines let water escape from the heating and cooling circuits only when a few extra Btu or a little extra cooling is needed, asserts Maurice Fairbrother, president of Dynamic Air Engineering of Grand Rapids, Mich., who designed the system.

"To our knowledge," he declared, "this will probably be the cheapest operating system in the county, square foot for square foot."

The recently completed Jefferson Medical Arts building at 919 E. Jefferson Ave. here is a four-story and basement structure with a gross floor area of about 35,000 sq ft.

Floors are divided into a series of doctors' suites opening off a central corridor, with about six suites on each side. A typical suite contains a waiting room, consulting room, and two examining rooms.

The 55 by 127-ft building was estimated to have a space heat loss of 1,071,915 Btuh and a cooling load of 972,000 Btuh. This is at design temperatures of -5°F outdoor and 75° indoor temperature for heating. For cooling, design conditions are 95° db and 75° wb outdoors and 80° with 47½ relative humidity indoors.

Built-Up System Used

To provide year-round air conditioning for the building, Fairbrother built up a system based on an 80-ton Acme R-22 shell and tube condenser, 80-ton Acme "Dry-Ex" chiller, two 40-hp Worthington VC compressors, and 80-ton Carrier (39W13) high pressure, high velocity air handling unit with 32,000 cfm fan.

An 8-in. supply well, 116 ft deep supplies 180 gpm of 52° water to the system. An auxiliary water source is available from the city water fill.

During the cooling cycle, the 52° well water is circulated by a Worthington condenser water pump through the condenser where the water is raised to 95°.

At that temperature, water is bled off into the drain well. But at any lower temperature it is recirculated through the pump back to the condenser to pick up more heat from the refrigerant.

Chiller water is recirculated in a closed circuit through the cooling coils in the air handling unit.

On the heating cycle, the 52° water is circulated by the chiller water pump through the chiller, where it is reduced to 42°. The 42° water by-passes the cooling coils and goes to the drain. However, if its temperature is higher than that, it recirculates back through the chiller.

On the condenser side, circulating water is raised to about 115° before it is passed through the heating coils in the air handling unit.

Modulating valves on the drain lines are controlled by thermostats with sensing elements in the discharge lines from the cooling and heating coils. As much or as little water is bled off as is necessary to keep the water at control temperatures.

Economies of this type are particularly notable in mild weather on the borderline between heating and cooling requirements, Fairbrother noted.

Rather than throw the whole system open to new water amounting to hundreds of gallons and running the risk of either overheating or overcooling, the two automatic modulating valves on the drain lines provide for recirculation.

Secondly, using two 40-ton compressors rather than a single 80-ton compressor as-

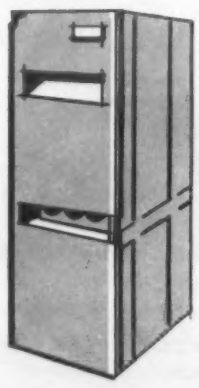
WATER SUPPLY WELL for Jefferson Medical Center in South Bend, Ind. is in foreground of picture. Ventilation supply air well is long strip at right, while machine room exhaust vent is below ground level in stairwell directly below windows in center of picture.

TYPICAL RECEPTION ROOM in doctor's suite has both supply and return grilles in ceiling with controlling thermostat on side wall. Examination rooms on outer perimeter of building are controlled by a separate thermostat in that area.

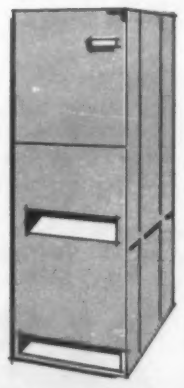
GM Delco

ANNOUNCES
A HOT NEW GAS LINE

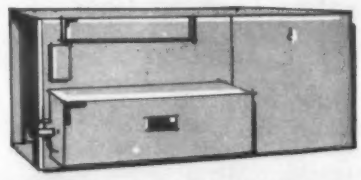
GM-DELCO engineers have designed a complete new line of gas-fired Conditionair furnaces for 1961. This new GM-DELCO line includes the refinements that dealers and builders want most. It's designed to accept air conditioning for complete central heating and cooling. Handsome, durable, efficient and compact units —easily installed. Brand name acceptance makes the new 1961 GM-DELCO line easier to sell.



NEW 1961 GM-DELCO HIGHBOY. Available now in 70, 80, 100 and 125,000 BTU input capacity. Other models up to 190,000 BTU input are available. Easily installed in closet or corner locations with zero clearances, low enough for basement installations.



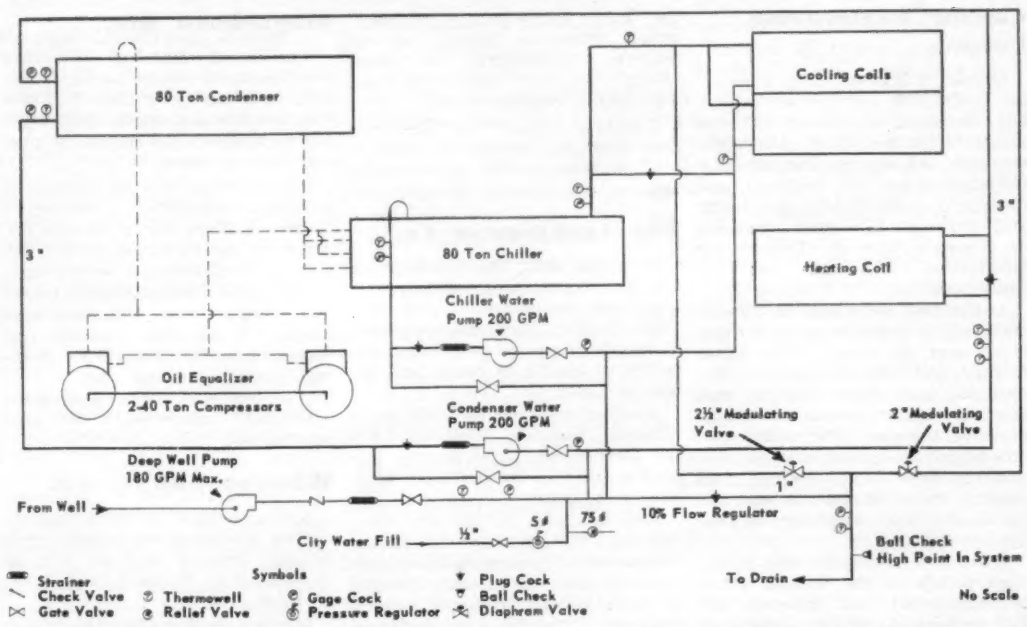
NEW 1961 GM-DELCO COUNTERFLOW MODEL. Here's a convincing answer to dependable, low-cost installations. Ideal for perimeter systems in crawl space or slab homes. Durable cast iron slotted burners and super-quiet blowers are featured throughout the new 1961 line.



NEW 1961 GM-DELCO HORIZONTAL GAS FURNACE. Designed for installation in utility rooms, attic areas, crawl space and suspended applications. Models run from 60,000 to 140,000 BTU input. Tested and approved by the American Gas Assn. for use with natural, manufactured, mixed and L.P. gases.

THE NEW 1961 GM-DELCO LINE is handsomely and durably finished in Sahara Tan and Cameo Beige and features the sheer modern lines which lend fine appearance and make installation in limited space possible. The entire line has been engineered to accept the Delco air conditioning units that are part of GM-Delco 365 Conditionair systems.

Whatever the type of home, whether traditional or modern, full, half or no basement, one or two story, split-level—there are GM-DELCO heating or air conditioning systems engineered to the highest reliability standards to meet all your requirements.



SCHEMATIC DIAGRAM of heat pump system shows how water flow is controlled to extract maximum Btu. In summer well water is supplied to condenser circuit—in winter through chiller circuit.

sures that one unit will operate in case of failure of the other. There are approximately six months out of the year when one compressor can handle the heat-cooling job, he said. The second compressor is used only during extreme weather conditions.

As a further precaution in case of unit failure or extremely cold weather, the system is equipped with supplementary electric heat equal in capacity to one of the compressors.

Thirdly, maximum use is made of outside air through an economizer temperature control arrangement.

"In this area, we have about eight or nine weeks out of the year when outside air is a big factor in boosting operating economy," Fairbrother explained.

As outside air temperature increases above 57° the amount of outside air introduced into the building is gradually increased. When temperature reaches 80°, outside, return, and exhaust dampers assume their minimum position as determined by a minimum pressure relay.

To replenish air exhausted directly to the outdoors from lavatories and some laboratories, a minimum of 6,000 cfm of air is being introduced continually.

An electric thermostat with its bulb in the mixed air stream provides freeze protection by shutting off the fan if the mixed air temperature drops below 40°.

Because the building is not expected to be used at night, time clocks shut off all outside air at 6 p.m. and turn it on at 7 a.m. A pressure electric switch wired across the time clock and fan starter shuts the exhaust and outside air dampers and opens the return air dampers full.

Basement Equipment Room Separately Ventilated

Equipment room in the basement is separately ventilated by an exhaust fan that discharges into an outdoor basement stairwell. Intake is from an adjacent air well on the exterior of the building.

Outside air is brought in through a duct that passes over the ceiling of an adjoining room and empties into the equipment room near its interior wall.

Fresh air for the air conditioning system is taken from the same well. It is mixed with return air, passes over a filter, and then heated and cooled in separate decks.

Dual high pressure hot and cold air ducts go up to each floor and over the ceiling of the central corridor to pressure reducing and blending boxes at each zone. There are six zones on each floor, with interior and exterior rooms zoned separately.

Dampers at the Barber-Colman mixing boxes are controlled by three Powers Regulator Co. pneumatically energized room thermostats located in each zone.

A Powers averaging relay receives branch line pressures from the room thermostats and transmits an averaged branch pressure to the damper motor in the mixing box to obtain the space temperature desired. Each thermostat in this arrangement is capable of one-third control of the damper motor.

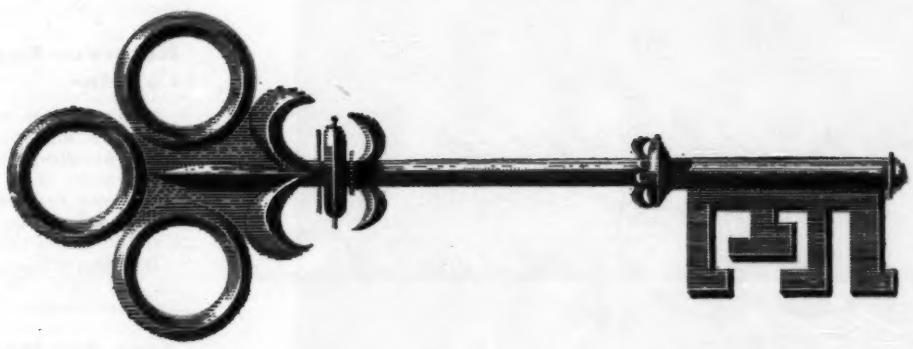
Air is diffused through Barber-Colman ceiling diffusers in each room. Return air openings are also located in the ceiling of each suite. Doors within suites are equipped with louvers to facilitate return air flow.

No provision is made to air condition the central corridors. Spill over from the opening and closing of doors to the various suites is expected to provide necessary cooling or heating. Main corridors with outside doors, however, have extra electric staged booster heaters.

The central air handling unit operates at all times, unless manually turned off.

With all its built-in operating economies, Fairbrother believes that this is an ideal application for a water source heat pump.

GM Delco



ANNOUNCES
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THE GM-DELCO KEY DEALER PLAN

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- **LIMITED NUMBER OF DEALERS**—in each market, and only they can buy Delco equipment.
- **PROTECTED PRICING**—stable pricing with protection!
- **DEALER LISTINGS IN NATIONAL ADS**—insures your direct participation in dynamic advertising, at no cost to you.
- **COMPLETE SALES BUILDING PLAN**—with local advertising, prospecting, and selling plans to build your sales.
- **OVER 200 MODELS—PLUS ACCESSORIES**—GM-Delco gives you a model to meet your every need.
- **GENERAL MOTORS GROUP INSURANCE**—available to eligible dealers and their personnel.

Get the full story right away! Send a post card or letter to Delco Appliance Division, General Motors Corporation, Department R2, Rochester 1, New York today!

GM-DELCO RELIABILITY LENDS PRESTIGE

GM Delco 365 CONDITIONAIR

Previews

Demonstrations, Displays, Introductions, Production To Be Featured In Chicago

Diehl Mfg. Co.

Huge cartoons depicting the application of Diehl fans for industrial, commercial, and residential use will form the background for the Diehl Mfg. Co. display in booth N-433.

Industrial exhaust fans, air circulators, attic fans, and duct fans will be shown in the center part of the booth.

Heat Controller, Inc.

Introduction of a new, low-cost, 7½-hp compressor-condenser high side will be the primary feature of Heat Controller, Inc.'s display in booths 629-31.

Complete information on new 7½ and 10-hp air-to-air heat pumps will be available. Completing the broadened commercial line, will be a 15-hp remote compressor-condenser section. All units will also have available matched evaporator blower low sides.

The company's new "Comfort-Aire" line of room air conditioners will be represented by model W-223, a 22,000 Btuh unit; model CW-881, a casement unit; and models W-701 and W-901.

The Vilter Mfg. Co.

The exhibit of The Vilter Mfg. Co. in booth 329 will feature an R-22 "Uni-Chiller."

Included in this packaged water chiller will be a 4-cylinder Vilter VMC compressor, a shell and tube condenser, and a flooded-type water chiller A scale model of the Vilter air agitated ice builder, used in latent heat storage systems, will also be shown.

Connor Engineering Corp.

Connor Engineer Corp.'s colorful booth 142 will be "an imposing physical expression of the complete contribution that the company makes to the air distribution needs of business and industry." Additionally, the booth will feature the latest products in Connor's line of "Dorex" air purification and air recovery equipment.

A featured item will be "Pneumavalve," a versatile air-flow regulator said to adapt with equal facility and effectiveness to low, medium, and high velocity systems. A working model of Pneumavalve, the new DPW under window high velocity valve attenuator and the new DPRD ceiling high velocity valve attenuator will add movement and meaning to the Connor display.

Also, two new units will be the high points of the booth's array of "Kno-Draft" air diffusers, the KO perforated diffuser, especially designed to integrate with various types of acoustical ceilings, and the KSS multi-pattern diffuser, which offers a variety of air pattern adjustments to meet widely differing application and installation requirements.

Connor's Dorex line also has new products, needed in certain air purification and air recovery applications, it was pointed out.

The Lockformer Co.

In booth 837, The Lockformer Co. will be showing several new machines including a hydraulic "Speednotch" for end notching ductwork. This machine has a capacity to handle 16 gauge galvanized or CRS.

Another new device will be a "Cliprol" machine used to form the Government lock or cup clip section used in the industry as a connector shape.

Also available for the first time showing will be an 18 gauge "Auto Guide" power flanging machine to turn right angle flanges in straight and irregular shaped material. This machine forms a flange also for use by the heating and air conditioning contractor.

Maplewood Div.

Maplewood Div. of Rockford Machine Tool Co., in booth N-142, will have in operation its new intermediate automatic feed table for high speed production of pipe and duct sections.

Pipe sections will be fabricated in regular production at the booth to give visitors and prospects opportunity to view the actual operating conditions and advantages.

The table "automatically transfers panels from the snap-lock machine to the roller machine, and makes possible snap-lock forming, rolling, beading, and crimping in one continuous high-speed automatic operation," it was pointed out.

Western Supply Co.

A new series of narrow silhouette remote air-cooled condensing units ranging from 2 to 5 hp will be introduced by Western Supply Co. in booth 138.

Western Supply will also exhibit a new 40-hp model to its present line of self-contained "AH" series units, a new in or out of the wall fan-coil convector for use with hot and chilled water systems, and a new "A" type upflow-downflow evaporator of one-piece end plate construction.

The company hopes to have ready a new all-aluminum evaporator and remote air-cooled condensing unit.

Rotherm Engineering Co., Inc.

New portable humidifiers that introduce humidified air into a room at about 5°F over room temperature thus leaving no lime carry-over or wet spots will be exhibited by Rotherm Engineering Co., Inc. in booth 745.

Rotherm will also exhibit revolving and expansion joints and glass fiber air nozzles.

Jenn-Air Products Co., Inc.

Effectiveness of Jenn-Air's QT sound control curb in blocking out 90% of a power roof exhauster's inlet noise with only a 10% reduction in air moving capacity will be the feature demonstration in booth 833.

Visitors need only ask the demonstrator to lower the hinged curb to become aware of its effectiveness as a sound attenuator.

Jenn-Air will also display its recently developed Key Line series of power roof exhausters, its "Astro-Vent" ventilated skyline, and its CW series wall exhauster for spot ventilation in multi-story buildings.

Loren Cook Co.

Theme of Loren Cook Co.'s display in booth 644 is planned ventilation for any type of building. Translites mounted on the background will show the ventilators the company manufactures and their important features.

Products to be exhibited include direct-drive roof fans, wall exhausters, centrifugal wheel and axial fan belt drive roof ventilators, and an axial fan direct-drive roof ventilator.

Heil Process Equipment Corp.

Highlight of the Heil Process Equipment Corp. booth N-442 will be a new solid plastic roof ventilator constructed of special formulated plastic to give maximum corrosion resistance.

Booth will also contain working models of a complete line of corrosion resistant fan equipment, roof ventilators, fume scrubbers of solid plastic and lined steel, and hoods, tank covers, ducts, and stacks built of solid plastic.

PLANNED FOR PRECISION
Pete:
Did you know
H & H has 30 years
of fabrication
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experience?
B.
Better Brass and Copper Products Since 1930
Time not only develops skills that younger, newer, less experienced suppliers are not apt to possess, but it also builds an inventory of tools and dies that expedites production and often saves the customer money. Having been in business since 1930, H & H Tube and Manufacturing Company's *skills* and *inventory of production equipment are* known to be among the finest.
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SEAMLESS
LOCKSEAM
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STRAIGHT AND COILED TUBE
TUBULAR PARTS

ON THESE TWO PAGES and pages 20 and 21 appears the second group of "Previews" of what exhibitors will show at the 15th International Heating & Air-Conditioning Exposition in Chicago, Feb. 13-16. The show, which is sponsored by the American Society of Heating, Refrigerating & Air-Conditioning Engineers, will be held in the International Amphitheatre. The first group of previews appeared in the Jan. 9 issue and additional booth data will be published in other issues up to the date of the Exposition.

Vapor Heating Corp.

Under the display theme "Boilers on the March," Vapor Heating Corp. will exhibit in booth 331 its line of compact packaged type steam generators and its "Hi-R-Temp" liquid phase heater. The latter unit provides temperatures to 600°F and modulates automatically.

Hercules Chemical Co., Inc.

The Hercules Chemical Co., Inc. exhibit will feature demonstrations of two new Hercules products and a theater which will show Hercules's new 15-minute sound color film, "Big League Soldering" featuring sportscaster Mel Allen.

Products to be featured and demonstrated in booth N-346 are Hercules "Swif" solders; solder and flux combinations in paste form to speed sweat soldering; and Hercules all-purpose "Tape Dope," a teflon tape to make leak-proof threaded connections on all heating and air conditioning connections.

In addition, the complete Hercules line will be shown including boiler compounds, and a number of additional products.

Hammond Valve Corp.

Visitors to the booth (747) of Hammond Valve Corp. will see bronze valves for domestic, commercial, and industrial application with special emphasis on the company's extensive line of heating specialties, sweat end valves for copper tubing, and heavy duty industry valves.

An extensive display of samples of the complete line is planned.

Robinair Mfg. Corp.

Robinair Mfg. Corp. will be represented by its complete line of "Robbi" service tools and equipment as recommended for dehydrating and recharging refrigeration systems brought about by an expansion program of the service divisions of the appliance manufacturers, the company reported.

Robinair will have a functional display in booth N-233 of the most popular items in its line, such as the pinch-off tool, charging cylinder, and vacuum pumps, as well as a preview of the new items presently being developed. Among these new items will be a tubing cutter, hermetic analyzer, and improved charging cylinders.

Walton Laboratories, Inc.

Walton Laboratories, Inc. will have on display in booth 37 a demonstration of all duct positive atomizing type humidifiers, in addition to space and residential units.

These units are rated for capacities ranging from 2 to 24 lbs per hour and are frequently used in multiples for large commercial applications, it was noted.

Also on display will be a manually operated centrifual atomizer. A 16-page manual on application engineering for every type of humidification program will be offered to all visitors.

Revcor, Inc.

Four classes of products will be exhibited by Revcor, Inc., in booth 1068: blower wheels, propeller fans, housings, and inlet rings.

The blower wheels will be shown in several different sizes and variations. Primary emphasis will be on double inlet blower wheels. As for the single inlet blower wheels, the firm will have its standard, or "Blastaire" line, exhibited and also its Type "R" or heavy duty industrial designed wheels. All of these blower wheels will be shown in both aluminum and steel construction and a variety of finishes.

Revcor will exhibit examples of each of its standard series of propeller fans. In addition, descriptive literature and performance data will be available.

Shaw-Perkins Mfg. Co.

Shaw-Perkins Mfg. Co., in booth N-113, will feature its entire line of hydronic room heat-distribution equipment with emphasis on its newly-designed direct accepting high temperature water (HTW) "PanelVector."

The basic display will contain actual samples of all radiation together with a detailed parts board showing the make-up of each model.

Spectators will be afforded first-hand knowledge of all manufacturing details, it was pointed out by Shaw-Perkins.

As a new feature in the show, Shaw-Perkins will display the newly-designed HTW PanelVector. According to the firm, Shaw HTW PanelVectors "are designed to comfortably distribute the heat energy of high temperature water (300° to 380°F) in comfortable combinations of low intensity radiation and low velocity moderate convection without conversion to a low temperature medium."

S. T. Johnson Co.

S. T. Johnson Co. will display a complete line of commercial, industrial, and residential type oil, gas, and combination oil or gas burning equipment in booth N-446, N-447.

Copeland Refrigeration Corp.

Accessible and welded hermetic compressors for air conditioning and heat pump applications will be featured by Copeland Refrigeration Corp. in booth 515, 517.

Copeland's "Copelametic" line will highlight suction-cooled accessible hermetic compressors in models from 2 through 30 hp. Also, the "Copelaweld" line will feature 2-cylinder and 4-cylinder welded hermetics. Spotlight will be on the new "4U" Copelaweld, a 1,750 rpm, 4-cylinder, welded hermetic designed for unitary air conditioners and heat pumps for 2½ through 5 hp.

Complementing the motor-compressor display will be a new line of air-cooled condensing units incorporating several new concepts of unit design, the company pointed out.

These will be applicable to commercial refrigeration and air conditioning single and multiple unit installations.

The Gallaher Co.

Spotlighted in booth 562, 564 by The Gallaher Co. will be its new "Super/AirVan" in Fiberglas. This is a power exhauster in which the housing "is constructed entirely of reinforced Fiberglas material formed in specific ways to get more efficient, quieter ventilation and provide a unit which is more durable, dent-proof, not suseptible to temperature changes or cracking, and never needs painting."

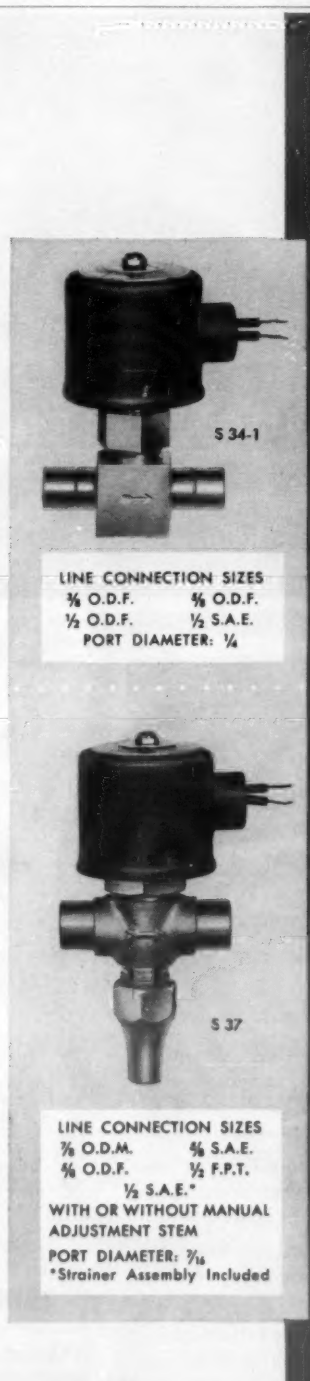
The unit, which is available in any color, also carries a ten-year insured warranty. "An actual insurance policy is issued on every unit," the company said, "and this assures that the customer will be thoroughly protected for the entire span of the warranty period."

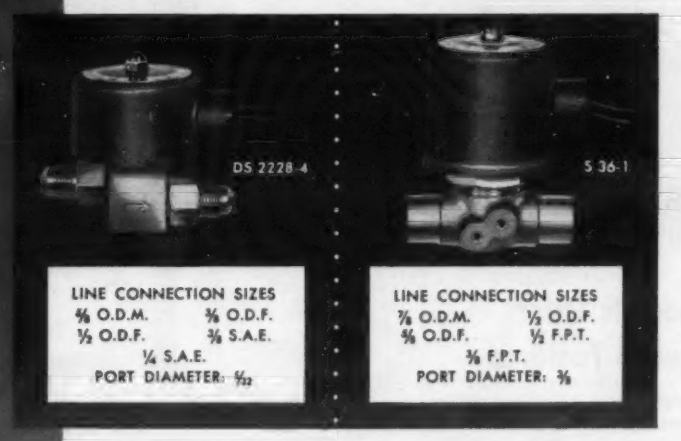
ALCO

"Power-Packed" Coils

HIGH PRESSURE SOLENOID VALVES

300 LBS. M.O.P.D. common refrigerants except ammonia





- Alco Manufactured, High Quality Coils are moisture-proof impregnated, cool operating and Power-Packed—
- Assuring Maximum Life and Positive Control Performance

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OF SOLENOID VALVES for EVERY APPLICATION
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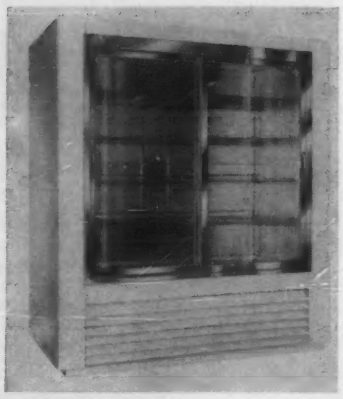
BUY SECURITY • BUY QUALITY • BUY ALCO

The one complete line of refrigerant controls: Thermostatic Expansion Valves • Refrigerant Distributors • Solenoid Valves Refrigerant Filter-Driers • Suction Line Regulators • Flooded Evaporator Controls and Reversing Valves

8365



Expands Line of Commercial Cases

● Glass doors of the swing-out or sliding type are featured with automatic hot gas defrosting in a new 45-cu ft freezer and a refrigerator recently introduced by Nor-Lake, Inc., Dept. AH&RN, Second and Elm Sts., Hudson, Wis.

Nor-Lake's expanded line of 45-cu ft models also includes a freezer, refrigerator, and a combination refrigerator-freezer with solid doors. All units feature moisture vaporizers to eliminate the need for drains.

"Operating at 0 to -10°, Nor-Lake's freezer is designed primarily for display of frozen produce and for self-service," the company said. "The 4-ply glass doors are self-closing and are framed in polished aluminum. Heavy heater strips surround each door opening and the entire frame to prevent condensation on the cabinet's exterior," the manufacturer points out.

Thermostats Offer Improved Features

● A new line of thermostats has been announced by the Barber-Colman Co., Dept. AH&RN, 1300 Rock St., Rockford, Ill.

"Mounted on a sturdy bakelite base, the new thermostats are enclosed by a die-cast cover frame with a textured metal face plate," it was pointed out. "Improved features include a sensitive bi-metal type thermometer and a round easy-to-read set-point dial with 1° graduations. Champagne gold is the standard finish, but polished chrome covers and textured metal face plates are also available," it was pointed out.

"Innovations have been added to the line. For example, sub-bases with one or two switches can be SPDT or SPDT with 'center-off.' These switches are rated at ½ hp at 120/240 V ac only with a non-induction rating of 15 amps at 120 V, 7.5 amps at 240 V ac."

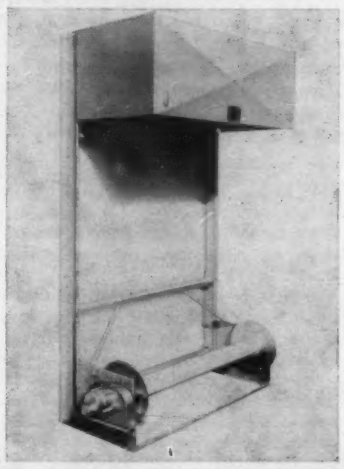
The thermostats are offered in two versions defined by electrical ratings. The line includes provisions for adding optional features such as a special dial scale, lock cover screw kit, blank cover, heaters, and other requirements which are normally encountered in control applications.

"Roll-Kleen" Air Filter Changes Self

● Now in production is the new Farr V-7 "Roll-Kleen" air filter which operates on the same principle as the film roll in a box-type camera, according to Farr Co., Dept. AH&RN, P.O. Box 90187, Airport Station, Los Angeles 45, Calif.

"The filtering media which comes in a roll, unwinds, from the top," the company explained. "It passes downward across the face of the air cleaner and as media is used, it is rewound on a bottom spool. Used filter rolls are disposable.

"When pressure drop reaches the pre-set limit, a pressure switch actuates the mechanism that advances the media, presenting a clean media surface to the air stream at all times. The V-7 series with four models offer a choice of units either with automatic drive or manual operation.



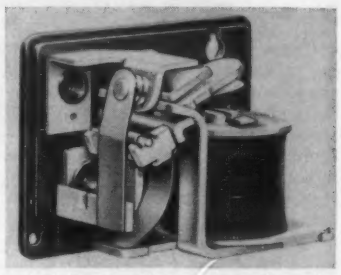
"The V-7 media roll consists of a glass filter material 65 ft in length. It has a high dust-holding capacity with an efficiency about 81%, and operates best between a velocity range of 350 to 500 fpm.

"The V-7 Roll-Kleen is recommended for new or existing systems where large volumes of air are to be cleaned. Individual filter sections may be bolted together in multiples to meet almost any capacity requirement. All models are available in vertical sections in 3, 4, or 5-ft widths. Heights range from 5 to 15 ft in increments of 4 in. Sections are shipped disassembled for job site assembly or may be factory assembled."

Voltage Starting Relay Introduced

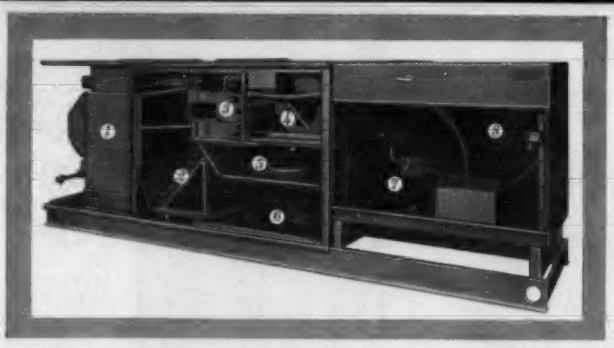
● A new voltage starting relay for capacitor-start motors up to 5 hp, has been introduced by Ranco, Inc., Dept. AH&RN, 601 W. Fifth Ave., Columbus 1, Ohio.

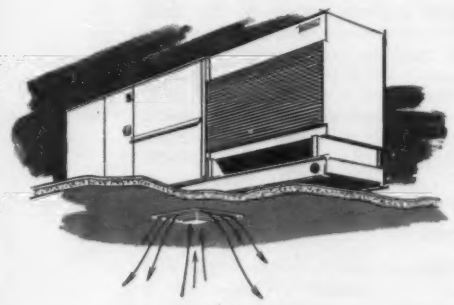
This H80 relay is designed to provide high starting torque for low temperature systems, commercial refrigeration, air conditioning units, and heat pump systems. The relay is an electromagnetic switch which opens and closes its contacts by variation of the magnitude of the voltage applied to the relay coil.



"At the instant of starting the motor, the normally closed relay contacts stay closed until the motor builds up speed and the start-winding voltage increases," it was explained. "Magnetic force then pulls in the armature to the core which opens the relay contacts.

"Special air-gap construction eliminates the problem of 'residual magnetism' between the armature and coil after the relay is de-energized. Both relay coil and contacts withstand switching of high transient voltages. High contact pressure prevents a relay contact from bouncing, sticking."





SKYLINER FEATURES

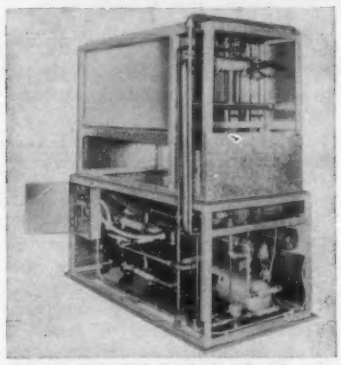
1. **Armor-coated heating section**—gas-fired, two-pass, heavy-duty type, with all joints and surfaces coated, inside and out, with fire-fused A-19 corrosion resistant ceramic coating. A.G.A. approved.
2. **Cooling evaporator coil**—aluminum finned-copper tube type for peak performance. Located downstream of heating unit, adjacent to outlet.
3. **Factory-wired electrical panel**—standardized and tested to simplify installation and eliminate costly trouble-shooting.
4. **Permanently lubricated blower assembly** – heavy-duty, lube-packed, sealed ball bearings in blower and motor eliminate need for periodic lubrication service.
5. **Fresh air inlet**—provides for blending of filtered make-up air with return air. Adjustable up to ⅓ of total volume.
6. **Conditioned air outlet**—connects directly to a short, pre-insulated combination supply-return duct. There are no transmission losses.
7. **Quality Compressor**—operates up to 125°F. outside temperatures. Standard Tecumseh or Copeland, easily serviced or replaced in any section of the country.
8. **Oversize Condensing Coil**—the larger area dissipates more heat to provide greater cooling efficiency.

TECHNICAL INFORMATION SERVICE

Detailed information and product specification sheets on the Skyliner may be obtained from your local Janitrol representative or by writing the factory. There's no obligation, so why not bring your files up to date?

JANITROL®

Simplicity, Economy Claimed for Ice Maker



● A simplified method of producing cracked ice has been made possible through the introduction of the new Tippmann plate ice maker, according to the manufacturer, Chicago Stock Yards Turbo Refrigerating Co., Dept. AH&RN, 7 Dexter Park Ave., Chicago 9, Ill.

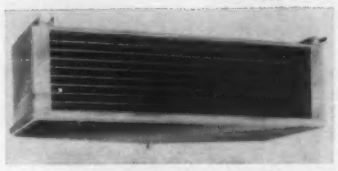
"This machine produces cracked, hard, sanitary ice with no snow or slush," the announcement said. "The cracked ice produced is non-uniform in shape averaging ⅝ in. to 1½ in. by ⅝ in. thick and weighs approximately 36 lbs per cu ft.

"The operation of this machine," the company said, "is simple and economical as the water used for defrosting is automatically pre-cooled for the next cycle. Ice is formed in sheets about ⅝ in. thick and dropped into an ice crusher at the bottom of the unit. The freezing cycle is 20 to 40 minutes.

"The machines complies with ASME codes. It will operate in any above-freezing location, requires no refrigerant seals, employs no moving parts in the freezing and harvesting of the ice, and is rust-free.

It is available in 1 to 200-ton (per 24 hours), single or multiple units, to meet any tonnage requirements and for use with ammonia or halogenated refrigerant.

'Compact but Rugged' Sales Cooler Unit Offered



● A "compact but rugged" sales cooler unit has been announced by Recold Corp., Dept. AH&RN, 7250 E. Slauson, Los Angeles 22, Calif., for all perishable food lines where the product must be held at 30° or higher and rapid defrosting is not required.

"Value of the sales cooler was proven in an installation of 44 of the units in a pre-cooler room in California," the company said. "In another installation, tests have shown less than one-half of 1% average meat shrinkage in a 35-ft by 180-ft sales cooler. The meat remained firm and maintained high bloom with no bleeding.

"The units are minimum height for ease of installation. Motors have built-in thermal overload protection. Coil fins are spaced at four to the inch, accommodating heavy front without appreciable reduction in air quantity.

"Economical air defrost is a feature of the package. It defrosts by means of box air during time clock shut down.

"The units are available for R-12, R-22, and DX ammonia in sizes ranging from 11,600 Btu to 34,600 Btu at 10° T.D. An additional unit with capacity of 60,000 Btu is planned."

Compact Condensation Return Unit Offered

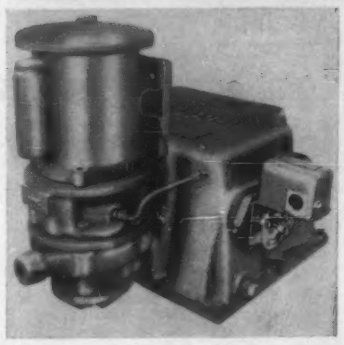
● A new "Syst-A-Matic" condensation return unit for the heating and air conditioning field has been designed by the Carver Pump Co., Dept. AH&RN, 1056 Hershey Ave., Muscatine, Iowa.

This unit has been engineered for both 1,750 and 3,500 rpm to produce quiet and efficient operation, the company said.

"The unit is compact, requiring a minimum of floor space and a low return (9 in. above floor)," it was stated. "Heavy cast bronze impellers designed for hot water are cleaned and balanced for smooth operation."

The pump is available with packing or mechanical seal. Heavy duty float switch of two pole type is installed, adjusted, and tested at factory.

What's New



Dual-Purpose Industrial Ventilator Developed

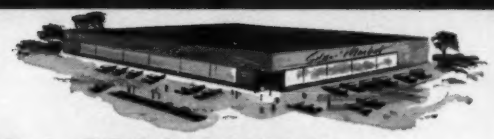
● A new dual-purpose industrial ventilator is being produced by Genie-Air Products, Dept. AH&RN, 3001 E. 11th St., Los Angeles, Calif.

The product "employs a unique engineering principle that combines both the recirculation of heated air in winter and exhaust of hot air in summer into a single compact unit," it was stated. The manufacturer reports cases in which the use of this model has reduced heating costs and maintained a more uniform, controlled temperature all year around.

"During the winter," it was explained, "an exclusive Divertco-Damper seals the top of the unit against winter heat loss. A 3-position reversing switch controls the direction of the fan. On the recirculating cycle, the fan blows the air downward. Wasted heat trapped under the roof line is pulled into the fan and blown out the diffuser openings at the bottom, carrying it back to the floor area.

"On the exhaust cycle, during the summer, the fan blows the air upward, pulling hot air into its path and exhausting it outside the building. The Divertco-Damper is lifted up by the air column and seated against the underside of the weather dome. Its conical shape directs the air movement so that it is easily and quickly exhausted without back pressure.

NEW ROOF TOP HEATING-COOLING SYSTEM HAS BROAD COST & COMFORT ADVANTAGES *for single story buildings*



SKYLINER by JANITROL

DOESN'T USE INSIDE SPACE... ELIMINATES DUCT SYSTEM... ALLOWS REDUCTION IN BUILDING HEIGHT... INSTALLS *FAST* WITH LESS LABOR

Whether you should specify the Janitrol Skyliner depends on the job, of course. But if the budget is tight, and you're looking for ways to chop costs without penalizing quality, by all means consider the Skyliner.

Shipped completely factory assembled, tested and ready for installation on the roof, the Skyliner "package" provides *really* economical heating, cooling or year 'round conditioning. Conditioned air is circulated through a ceiling diffuser (located beneath the unit) in the conditioned area. No duct system is needed . . . total building height can be reduced. It has an unobtrusive, low silhouette . . . no stack is required . . . flue gas exhauster is furnished. And not a single cubic foot of usable inside space is used by the Skyliner system!

One or more Skyliner units may be used to provide a simple, efficient zone-controlled comfort system, with each Skyliner controlled by its individual thermostat. A wide range of capacities is offered to match the needs of each zone.

The Skyliner is completely enclosed in a weatherproof, insulated, aluminized steel cabinet. The unit has been operationally tested in 60 m.p.h. winds and for two hours at 12-inch/hr. rainfall. No water or sewage service, no refrigerant piping or charging and no complicated electrical wiring are required. All important factors in cutting costs and speeding up installation!

Here are Some Points to Remember about the Janitrol Skyliner

Multiple Unit Zone Control Type—You can have an individually sized and controlled unit for each occupancy area. Each unit operates only for its own zone, without standby or transmission losses. Multiple units assure continuity of service, since the shut down of a single unit for service or maintenance will not affect performance of other units.

Low Installed System Cost—A Skyliner packaged system offers substantial savings over a conventional site-fabricated central system by:

- Elimination of equipment room.
- Elimination of duct system.
- Elimination of wiring, assembly, installation and checking of individual system components.
- Elimination of water or sewage service.

Meets or exceeds national standards—All Skyliner units carry the certification seal for capacity and performance according to the rigid standards of the Air-Conditioning and Refrigeration Institute. Components are listed by Underwriters' Laboratory and the American Gas Association.

Leasing Plan to Save Capital Investment A complete Skyliner system can be leased on a long-term basis. Permits owners to keep their working capital working.

HEATING & AIR CONDITIONING

A DIVISION OF MIDLAND-ROSS CORPORATION, COLUMBUS 16, OHIO

IN CANADA: MOFFATS LTD., TORONTO 15

A DIVISION OF M-R MIDLAND-ROSS CORP.

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Hangers

Cable and Conduit . . . Messenger

Outserves! Outlasts!

In Zinc-plated Steel and Everdur. All sizes. Insulating bushings available. Top quality. Permit quick wiring. *Send for literature.*

MINERALLAC ELECTRIC COMPANY
25 N. PEORIA ST. • CHICAGO 7, ILL.

Previews

Components, Accessories, and Tools To Be Displayed at Chicago Exposition

General Filters, Inc.

In booth 762, General Filters, Inc., will exhibit its complete line of filters for both light and heavy fuel oil, industrial filters, warm air humidifiers, soot remover, etc.

Electric Boat Div.

Electric Boat Div., General Dynamics Corp., will show a variety of its new "Turbo-Slot" vaneaxial fans at booths 132 and 134.

Electro Dynamic, a sister division, is sharing the display in booth 136. Its exhibit will feature a line of "low vibration and quiet" motors.

A number of items on display in the joint exhibit will demonstrate the quality of two products in combination with fans utilizing the Electric Boat slotted-blade impellers driven by Electro Dynamic motors. There will be fans at the show in sizes from 2½ to 22 in. in diameter.

Binks Mfg. Co.

Water cooling towers and spray nozzles for air conditioning systems will be shown by Binks Mfg. Co. at booths 1062 and 1064.

Spotlighted in the nozzle display will be the Binks "Rotojet" and "Spra-Rite" nozzles. Representative of the 4-B series of Binks cooling towers, with capacities ranging from 5 to 300 tons of refrigeration, will be the 4-B-7½.

The WT, or "Watertemp" series, to be represented by a WT-7½ cooling tower, offers capacities from 5 to 300 tons, and features hot-dipped galvanized construction and redwood removable decking.

Cargocaire Engineering Corp.

Introducing its new "Honey-Combe" dehumidifier to industry after 23 years of producing dehumidifiers for military applications, Cargocaire Engineering Corp. will display a full scale model in booth N-243.

Emphasizing its compactness and efficiency, the company says the unit will remove 21 lbs of water per hour and occupy only 50 cu ft of space.

Ramset Fastening System

The display of Ramset Fastening System in booth 220 will include two recently-introduced items in Ramset's hammer-in fastening line.

One is "Shure-Set" R-450, a heavy-duty tool developed to meet the special needs of contractors to fasten close to walls or other hard-to-reach spots. It has a handle specially designed to keep the worker's hand away from the area of impact.

The other is the R-550 craftsmen's kit, consisting of one standard Shure-Set tool, one "Shure-Drive" shock-absorbing hammer, drive pins and threaded studs, all in a deluxe carrying case.

Powder-actuated fastening tools, which utilize the energy of a fired blank cartridge to set studs into concrete and as much as one-inch of steel by a simple pull of the trigger, will also be displayed by Ramset.

Carnes Corp.

Carnes Corp. reported that it will have "an exhibit of unusual interest in that we will have a working model of our new high velocity unit on display."

The new modular diffuser will also be highlighted in the booth (940), along with standard diffusers, registers, grilles, louvers, dampers, and power roof ventilators.

Lennox Tool & Machine Builders

Complete information on its bench model TE-100 "Metlmastr," newest in the Lennox "Tru-Edge" line of shearing, forming, and piercing machines, will be available in the booth (1106) of Lennox Tool & Machine Builders.

The model has only five moving parts. It has an edge-cutting capacity up to 12 ga. in mild sheet plate and 16 ga. in stainless steel. It's equipped with a ½-hp, 110-volt, single-phase motor. It has a variable stroke length that can be adjusted from .022 infinitely through .110 without stopping the motor. The operator merely sets the stroke pointer at gauge indicated on scale and the model TE-100 is ready for use, the company said.

Lewin-Mathes Co.

In booth 434, Lewin-Mathes Co., division of Cerro Corp., will be operating a miniature drawbench which will illustrate the drawing of copper tubing. A ⅝-in. o.d. copper tube will be reduced to a ¼-in. o.d. copper tube.

The company will also have on display some of its copper tubing to illustrate the range of sizes that it manufactures.

Milwaukee Electric Tool

Highlighting this year's presentation by Milwaukee Electric Tool Corp., in booth 1158, will be its heavy-duty electric shear.

Weighing 5¼ lbs, the shear is rated at 16-gauge capacity in cold rolled steel, with a capacity of 17 gauge in stainless. It operates at a no-load speed of 3,800 strokes per minute. A main feature is the square blade ram which maintains the proper clearance and alignment of the blades necessary for clean cuts and accuracy, the company indicated.

Milwaukee will also present its "Sawzall," an electric hacksaw, and its Pittsburgh lock hammer, used for closing the "seam" on ductwork with the Pittsburgh lock, the company said. In addition, the firm will display hole shooters, screwdrivers, electric hammers and saws.

Pennsalt Chemicals Corp.

Pennsalt Chemicals Corp., in booth 208, 211, will feature a new member of its line of refrigerants and a new container for one of its standard products. It will also feature the five members of its present "Isotron" refrigerant line.

"Isotron 13," introduced to the trade in 1960, is designed especially for use in producing temperatures below -100°F, the company noted, adding: "It will be particularly useful in providing low temperature atmospheres for research and development in the aircraft, missile, chemical, automotive, and petroleum fields.

Cobra Metal Hose

In the 18-ft booth (1026-28) exhibiting Cobra Metal Hose products, the company will show the functional use of Cobra connectors.

One panel in the display will show the hydronic installation connectors used for installing domestic heating systems by the use of Cobra "Form-A-Line" connectors. Another panel will show the functional use of the hydronic connectors as used in large commercial buildings.

A third panel will be directed to the functional use of high frequency vibration absorbers used in the refrigeration industry. And one panel will show the functional use of Cobra flexible pipe as used in industrial applications and for the conveying of high pressure steam, oil, water, chemicals, etc.

Barry Blower Co.

In booth 720, Barry Blower Co. will display a variety of centrifugal fans including forwardly curved blade, non-overloading, and utility types.

The company also will show a variety of specialized fan wheels, etc. "that will be of interest to manufacturers of many types of equipment."

Vibration Mountings, Inc.

Scheduled by Vibration Mountings, Inc. for exhibition in booth 658 is its 9 ft by 12 ft display case showing the vibration mountings story.

In addition, the firm will have available for distribution Vibration Mountings and Controls, Inc. latest literature including the new air conditioning story showing vibration mountings as they apply to the air conditioning, heating, and ventilating industries.

Also, the firm has a new type C-10 bulletin showing the latest in spring mountings as well as a new pad type bulletin which will also be distributed.

Other attractions will be samples of products, including mountings which the company is currently supplying missile base installations for the isolation of all types of air conditioning and generating equipment.

Industrial Plastic Fabricators, Inc.

Blowers and fans ranging from 143 to 15,000 cfm made of unplasticized rigid polyvinyl chloride for exhausting corrosive air, fumes, and gases will be displayed in booth 116 by Industrial Plastic Fabricators, Inc.

The firm will also show its air washers entirely fabricated of polyvinyl chloride to eliminate corrosion.

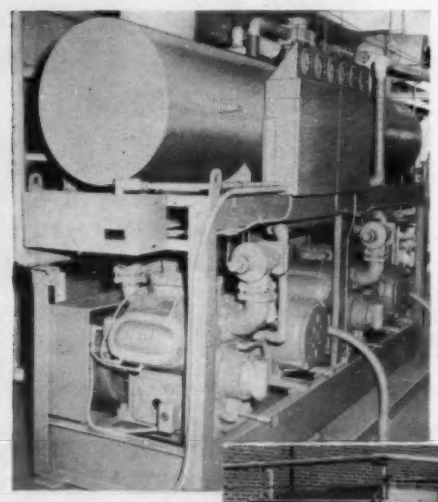
Cleveland Controls, Inc.

The "Master Monitor," to be exhibited in booth 1221 by Cleveland Controls, Inc., represents a new concept in sequence control of multiple boiler installations, according to the company.

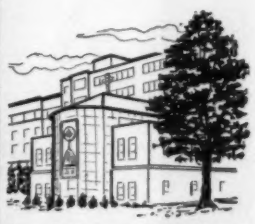
The firm said a complete modulating and sequence control system is available in a single compact enclosure, for automatically operating a bank of boilers, compressors, or other units, so that only the required number are called on to meet the load demand. The Master Monitor cuts individual units in and out of operation in response to pre-determined pressure or temperature variations—or to any other signal.

Also exhibited by Cleveland Controls will be components used for positioning and metering combustion control systems, featuring electronic transmission.

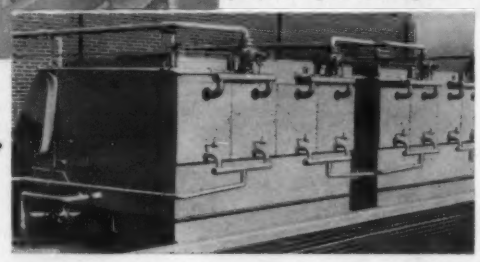
With Vilter air conditioning . . . it's almost a pleasure to be a patient here



View of the two Vilter packaged water chilling units arranged as four independent refrigeration systems. Two Vilter VMC compressors are included in each chiller unit.



New addition to St. Mary's Hospital, Huntington, West Virginia.



View of the two Vilter evaporative condensers, one for each packaged unit. Each condenser is divided into two separate sections to efficiently reduce capacity when required.

Efficient, flexible, quiet—the Vilter installation for the new addition at St. Mary's Hospital provides everything a hospital requires of an air conditioning system.

This system is designed around two separate Vilter Refrigerant 22 packaged water chilling units arranged as four independent systems supplying a total of 300 tons of refrigeration.

The performance advantages are — (a) an exceptionally flexible operating plant because of the four systems and the 33% and 66% capacity modulation built into each compressor; (b) lower starting and operating noise levels as a result of dividing the full load and using modern slow speed equipment; (c) maximum insurance against failure; (d) ease of servicing.

Four Vilter VMC compressors, V-belt driven from 75 H.P. motors, individually develop 76 tons as each water chiller cools 440 gpm from 53° F. to 45° F. with a 35° F. refrigerant temperature. Two Vilter evaporative condensers are utilized with each condenser divided by a baffle to actually provide four separate 100-ton units.

You benefit doubly with Vilter refrigeration and air conditioning equipment—(1) careful design for long life and reliable, efficient performance; (2) a complete and integrated line of equipment, and the experience to counsel you on the best type of installation. Why not let the nearest Vilter representative help you?

Sold by Vilter Distributor, Commercial Refrigeration Sales, Inc., Huntington, West Virginia.
Architect, Vecellio & Kreps; Consulting Engineer, L. O. Johnson; Mechanical Contractor, Dougherty Company, Inc.

Vilter® refrigeration air conditioning

The Vilter Manufacturing Company
Milwaukee 7, Wisconsin
Air Units • Ammonia and Freon Compressors • Booster Compressors Baudelot Coolers • Water and Brine Coolers • Blast Freezers Evaporative and Shell and Tube Condensers • Pipe Coils Valves and Fittings • Pakice and Polarflake Ice machines.

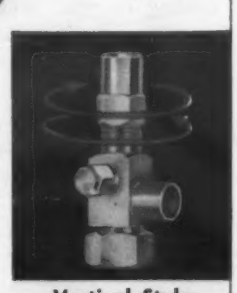
Write for Bulletins 820, 631 and 932 to The Vilter Manufacturing Company, Dept. RN-601 2217 South First Street Milwaukee 7, Wisconsin

PRIMORE ROTALOCK VALVES Turn a Full Circle in either direction

FOR COMPRESSORS, RECEIVERS, CONDENSERS

- Detachable
- Locks in any position
- Rotates a full 360°
- Reduces inventory

All Rotalock Valves feature the highly effective Teflon Fiber Seal for positive sealing at all times.



Vertical Style

REFRIGERATION designing engineering sales

Write for fully illustrated catalog to:
Primore Sales, Inc.
2460 South Main Street • Adrian, Michigan

Preview

New Is Key Word to These Exhibits Scheduled for ASHRAE Show Visitors

Marlo Coil Co.

Marlo's booth No. 1215 will display the smallest size in an entirely new line of 34 sizes of vertical multizone units with many new features; such as, minimum floor space requirements, a centralized lubrication system, factory zoned dampers and horizontal, vertical, or angular discharge.

In addition, there will be displayed seven types of finned coils and three fan-coil units, and a stainless steel spray type dehumidifier. The booth has a display and conference area. Staff engineers will be available at all times.

Ammerman Co., Inc.

Power roof ventilators with factory installed self-acting dampers in the frame of the unit will be featured in the Ammerman Co., Inc. booth 429.

Other products to be displayed include a new low contour "Air-Xpeler" spun unit in new sizes and motor speeds, a garage system for removal of carbon monoxide gases, and "Swing-O-Way" exhaust systems for removal of diesel tractor exhaust, welding, and soldering fumes using retractile tubing up to 6-in. diameter.

Carrier Air Conditioning

A complete line of self-contained and applied air conditioning and refrigeration equipment to fit all applications from small commercial to large industrial jobs will be featured at the Carrier Air Conditioning Co. exhibit in booths 549, 551, 555, 561, 565, and 569.

Featured will be two new room terminal units, one containing an economical built-in by-pass control, and the other designed for central heating and ventilation with provision for future cooling.

Other portions of the exhibit will be devoted to a number of Carrier engineering aids to consultants.

Hydrotherm, Inc.

A packaged boiler that includes circulator, expansion tank, and air elimination system and a duo-service system for heating and domestic water supply will be special features at the Hydrotherm, Inc. exhibit in booths 667, 669.

Hydrotherm will show its residential boilers of 50,000 to 300,000 Btu input and its "Multitemp" commercial and industrial series boilers of 360,000 to 3,600,000 Btu input. These boilers are of cast iron and are engineered for gas firing.

Baltimore Aircoil Co.

Two new 150-ton "blow-thru" cooling towers will be in operation side by side at Baltimore Aircoil's booth No. 39.

The first unit is a standard quiet-operating centrifugal fan tower, one of B.A.C.'s 1960 line of cooling towers from 10 to 800 tons.

The second unit is a newly-developed multi-stage propeller fan cooling tower that combines low-operating horsepower with centrifugal fan quietness.

American-Standard Industrial Div.

Built around the central theme of Air-Lift for commercial and industrial buildings, the American-Standard Industrial Div. booths 20 and 22 will stress single-source responsibility in air conditioning systems.

The nearly 2,500-sq ft booth space will feature a plastic model of a typical public building which will glow in alternating colors to depict the changing seasons and the consequent need for year-round air conditioning.

Another feature will be a marketing research project to be carried out during the exposition. A questionnaire will ask opinions on the most effective methods of advertising and the influence of industrial design on purchase preferences by consulting engineers, architects, and contractors.

Among products to be displayed for the first time are American-Standard Square Heat packaged boilers; Scottie, Jr., packaged boiler with 2½-in. tubes; the brand new CRD power roof ventilator; and the commercial Scotch packaged boiler.

Also exhibited will be "Tonrac" refrigerating machine; capillary air conditioner; "Versare" liquid chiller; multi-zone Type B blow-through air conditioner; heating and cooling coils; packaged commercial air conditioning units; pacskaged multi-zone air conditioner; air-foil bladed fan; Types 20, 30, and 40 "Remotaire" room air conditioner; utility sets; gas-fired "Venturafin" unit heater; and Ventura fans.

Clarage Fan Co.

A "Twinalator" roof top unit providing both air supply and exhaust in one unit with one roof opening and one motor will be a highlight of the Clarage Fan Co. booth 810.

Another feature attraction will be a new "Humiblend" section on the "Multitherm" line which provides for dehumidifying of make-up air and prevents excessive build up of room humidity under light internal sensible load. Both of these attractions will be operating.

Other products on display will include a new packaged XL fan, unitary fan parts for original equipment manufacturers, an Air-foil class II fan, centrifugal fans, a direct drive ready unit, and various centrifugal wheels.

Thermal Engineering Corp.

Products to be displayed at Thermal Engineering Corp. booths 124 and 225 include one of its 12 sizes of high-pressure, double-duct air conditioners.

Also represented will be compact air conditioners for schools, apartments, etc., in both vertical and horizontal units, and a vertical airflow type Thermal air-cooled condenser.

Horizontal and vertical fan and coil units will be represented by two console type conditioners. A TH type unit will also be on display. These are built (in horizontal model only) for schools, small commercial establishments, etc.

Thermal cooling and heating coils will be embodied in a "composite" coil included in the display.

Octagon Ventilator Mfg. Co.

Centrifugal and propeller exhausters, plus gravity ventilators, will be represented at the Octagon Ventilator Mfg. Co.'s display at booth N-432.

The "Rectangular Junior" is a low silhouette gravity ventilator to be exhibited; the spun aluminum "Vent-X-It" will display special construction details of the Octagon centrifugal exhausters; and the "Air-X-It" propeller type unit will show yet another phase of Octagon's powered ventilator line.

H. W. Tuttle & Co.

In booth 671, H. W. Tuttle & Co. will show, for those interested in electric heating, a complete packaged unit with necessary controls for installation in heater ducts.

This new item, along with strip heaters for electric baseboard units and supplemental heaters for heat pump application and electric furnace heaters, will be featured in the company's display.

Check these other benefits of **NEW** General Electric 30- and 40-amp starters . . .

LOWER POWER REQUIREMENTS, LONGER CONTACT LIFE

General Electric now adds the newly designed 30- and 40-amp series of contactors and starters to the present 50- and 60-amp forms. This means a complete line of rugged, compact, economical air conditioning and refrigeration controls is now available to fit your specific needs for:

- **compressor motor applications**
- **special panel mounting applications**

Here are features you'll especially like about the new 30- and 40-amp forms.

SMALLER SIZE—new contactors and starters require less mounting space than former 30- and 40-amp models. They're smaller, yet both handle applications up to 600 volts.

*CR NUMBER	MAXIMUM RATINGS					
	Full Load Amps			Locked Rotor Amps		
	220V	440V	550V	220V	440V	550V
CR154 C	30	15	15	180	90	72
CR154 D	40	20	20	240	120	96
CR154 E	50	25	25	300	150	120
CR154 F	60	30	30	360	180	144

* For starters only. Change CR number to CR153 C, D, E, and F for contactors at same rating.

POWER REQUIREMENTS REDUCED—both the new forms require only 4.5 watts, a reduction from 3.5 to 9.5 watts over previous forms. Result: a smaller control transformer can be used; lower component temperatures mean increased life, less maintenance cost.

CONTACT RELIABILITY—vertical double break silver cadmium oxide contacts shrug off dust, resist contact welding.

Still other important features include:

- **Quick trip or standard overloads**
- **Optional "push-on" coil terminals**
- **Easy three-point keyhole mounting**

Ask your General Electric Sales Engineer for more information, or write for bulletin GEA-7316, General Electric Co., Section 811-20, Schenectady 5, New York.

You get **MEASURABLE ADVANTAGES**
with General Electric Control

Progress Is Our Most Important Product

GENERAL ELECTRIC

TECH CENTER

by FRANK J. VERSAGI

Refrigerant 22: Hero or Villain? (1)

"There is no question about it; I have serviced twice as many burnouts on units charged with Refrigerant-22 than with 12."

"I have had many more problems with R-22 compressors than with 12: Valve breakage, burnouts, mechanical troubles like bearings."

"If I had a choice, I would never use 22 in a system again."

THOSE ARE SERVICEMEN TALKING.

"In our years of experience, we have found nothing to detract from the operational efficiency obtained by the use of R-22. We will continue to use it until proven otherwise."

"I don't think there is a doubt in the world that R-22 is here to stay."

"We have had no problems as to service frequency or operating conditions when using Refrigerant-22."

THOSE ARE MANUFACTURERS SPEAKING.

Are they talking about the same thing?

If we had to summarize servicemen's thinking on the relationship of Refrigerants 12 and 22, it would be something like, "The reason manufacturers like 22 is because it allows them to convert a 3-hp compressor to a 5-hp compressor just by changing refrigerant. They charge more for the so-called larger compressor."

Most manufacturers would counter, "There were some difficulties in the very beginning when manufacturers didn't realize all the variables which had to be considered in the changeover from 12 to 22, but that's history now. The problems are over."

Opinions aren't unanimous. There are manufacturers, some important ones, who share the service industry's feeling about 22, and who refuse to use it in their equipment.

And there are service people and users of equipment whose well-kept records show better experience with 22 than with 12.

FREON
THIS SYSTEM IS OPERATING ON
FREON 12
THIS SYSTEM IS OPERATING ON
FREON 22
These systems are using compressors with the same bore, stroke and R.P.M.

DUPONT'S "FREON" PRODUCTS Div. uses this demonstration to show the differences in operating characteristics of Refrigerant 12 and 22.

It's been 10 or 15 years now since Refrigerant-22 was introduced. Let's review what has happened.

It was a combination of factors which gave Refrigerant-22 its first black eye in the early fifties.

A manufacturer of commercial refrigeration equipment produced the first major line of 22 equipment, a fixture using a water-cooled 2-hp compressor. Originally, the crankcase had a pressure limiting valve on the suction service valve; when customers began going multiplex, the limiting valve was transferred to each fixture on the machine.

This series of cases performed adequately, and no troubles were encountered.

Encouraged by this experience, the manufacturer went to R-22 on its 3 and 5-hp equipment. But the compressor supplier had converted to non-ferrous metal valve reeds. It was learned later that these reeds had far less tensile strength than the steel ones.

Further, it developed that these non-ferrous reeds would work-harden, form star-shaped fine cracks, and leak, allowing gas to pass through to the top of the piston. So the motor had to start the compressor against this pressure.

Adding to the problem was the fact that there were not available any fast-tripping heater elements for magnetic starters. On start-up, acting against what was almost a locked rotor condition, the in-rush current heated the stator windings. Since the starter did not protect quickly enough, the units burned out.

The failure rate on this series of fixtures approached 30%.

Then fast-tripping starters became available. These heaters warmed up in 16-17 seconds, compared to 3 times that long required by the older starters.

Also, the compressor manufacturer switched to Swedish steel for its valve reeds.

The troubles ended. But by now Refrigerant-22 had earned its reputation as a trouble-maker.

The reputation was augmented by other errors made by several producers. In the rush to take advantage of the beneficial properties of Refrigerant-22, several component and equipment producers attempted to make the transition simply by substituting 22 for 12—making no other major alterations in design.

Such an approach was catastrophic.

Gasket materials suitable for R-12, broke down in 22. Motor insulation, both wire and slot, was found inappropriate. The higher temperatures and pressures characteristic of 22 caused mechanical difficulties with valves, bearings, pistons. Oil breakdown, corrosion, sludge became commonplace. Capillary tubes began plugging in unusual places—like the outlet end, rather than the inlet end.

(To Be Continued)

Something new for the air conditioning boys... and coils!

Now, Air Handlers from Halstead & Mitchell in 880 to 47,500 CFM Range

AH Series Air Handling Units

Before you buy any Air Handler, check and compare these new H&M units, feature for feature and price for price.

See how easily H&M Air Handlers accommodate matching cooling and heating coils, with space for up to 12 rows of coil depth overall! If you like, H&M coils (from 2 to 68 square feet of face area) can be factory-installed, leaving protruding connections on either side for easy hook-up. Halstead & Mitchell makes the coils you need to match: direct expansion, chilled water, hot water, standard or non-freeze steam. Filter sections are also available.

Performance? H&M Air Handlers deliver air against static loads up to 2-inches water gauge, and do it quietly.

Construction? They're the sturdiest units in the field. Forward curved centrifugal blowers are enclosed in a heavy gauge cabinet featuring formed steel corner posts and flush mounted panels.

Price? Just ask your H&M distributor. You'll be pleased. He has all the engineering information, too. Or, you can write for Bulletin AHU-100, Halstead & Mitchell, Bessemer Building, Pittsburgh, Pa.

HM Halstead & Mitchell

Air Handlers • Finned Coils • Air-Cooled Condensers • Cooling Towers • Water-Cooled Condensers

BE SURE TO VISIT BOOTH N-217 AT THE INTERNATIONAL EXPOSITION IN CHICAGO, FEBRUARY 13-16

News in the Heating Field

Month	Grand total	Forced warm air and gravity			Floor and wall		
		Total	Forced	Gravity	Total	Floor	Wall
Total	**1,696,368**	**1,222,151**	**1,173,070**	**49,081**	**474,217**	**94,295**	**379,922**
January	106,607	78,277	75,828	2,449	28,330	4,136	24,194
February	108,248	79,889	77,074	2,815	28,359	4,882	23,477
March	116,601	82,807	80,190	2,617	33,794	6,319	27,475
April	122,833	86,817	84,510	2,307	36,016	7,092	28,924
May	122,868	88,495	85,772	2,723	34,373	5,456	28,917
June	140,208	107,366	104,372	2,994	32,843	4,839	28,004
July	133,681	99,232	95,157	4,074	34,449	5,069	29,380
August	179,321	131,773	125,816	5,957	47,548	12,230	34,318
September	202,000	147,495	140,351	7,144	54,505	15,272	39,233
October	199,000	134,000	127,000	7,000	65,000	17,000	48,000
November	149,000	105,000	100,000	5,000	44,000	8,000	31,000
December	116,000	81,000	77,000	4,000	35,000	4,000	31,000

Source: January-September—Bureau of Census, Current Industrial Reports, Heating and Cooking Equipment; October-December—estimates by Building Materials Division, BDSA.

* * *

Warm Air Furnace Shipments--

(Continued from Page 1)

number of new one and two-family housing starts.

"On the basis of the current trend, such starts probably will not exceed 1960. If, however, there should be some governmental stimulus during 1961, there may be an increased rate of single-family starts during the latter half of the year.

"Of great importance to warm air furnace manufacturers is the volume of replacement and modernization, and rehabilitation of existing homes. Outlays for these purposes are expected to increase in 1961. New markets seem to be developing for suspended, horizontal-type furnaces."

Redick reported that the Building Materials Div. hopes to complete, in early February, a survey of some 10,000 heating equipment installers "in which we are attempting to obtain some definitive data relating to the replacement and modernization market."

Regarding the 1959 shipments, the report pointed out that they were made by 192 manufacturers, operating 200 plants.

"The 1959 total, excluding duct, gravity, and floor and wall furnaces, exceeded by 128,000 units the previous high, in 1955, reported by the Bureau of the Census. Wall furnace shipments also reached new highs in 1959. No comparable 1955 data are available for duct furnaces."

The shipment statistics, obtained in a survey of the warm air furnace industry conducted by the Building Materials Div., apply to floor and wall types of central, forced warm air; and gravity furnaces. The data also include furnaces shipped with electric heating elements and forced warm air furnaces for year-round use.

The report includes seven tables. One shows shipments in 1959, by type of furnace, Btuh, and value. A breakdown by type of fuel includes 1959 shipments by warm air furnace manufacturers of furnaces equipped with electric heating elements.

1959 value-of-shipment data, by size of manufacturer and by destination, appear in two other tables. Two others give unit shipments and value of shipments of warm air furnaces from 1950 through 1959. The seventh table, reproduced here, shows value of 1960 unit shipments by month.

The Building Materials Div. said that results of its survey "indicate that suspended horizontal forced warm air furnaces, originally designed for specific residential applications, have grown in popularity and are being used increasingly in commercial and industrial installations.

"Use of electric heating elements in warm air furnaces is also expanding, and the industry expects this trend to continue."

Earlier, the division issued a report—another in its current series relating to the various segments of the heating industry—on shipments of steel heating boilers.

New SGA Manual Compares Gas and Electric Heat Methods

DALLAS — A new manual, "Comfort . . . in Whole House Heating," prepared to answer the many questions posed by gas versus electric heating, has been published by the Southern Gas Association and is now available for distribution.

"Designed as an education piece, the manual may be used to inform gas company personnel, heating dealers, and heating equipment salesmen, about the factual story of heating with electricity, and how it compares with gas 'fresh air' heating," the SGA said. "As a consumer piece, it can be left with the prospect for review and future reference.

"Prepared under the direction of SGA's Heating & Air Conditioning Committee, the four-color, 16-page manual presents a comparison of the two methods for 'laymen.'"

Members of the committee responsible for preparation of the manual are: W. D. Fortner, United Gas Corp., chairman; W. Frank Wright, Southern Union Gas Co.; E. F. Davis, Chattanooga Gas Co.; and Harry Phipps, The Houston Corp.

Single copies can be ordered from SGA for $1.50 each. For prices on quantity orders, write Southern Gas Association, 1524 Life Building, Dallas 2, Texas.

NEWS readers are invited to write to the editor giving their opinions on any subject of interest to the industry.

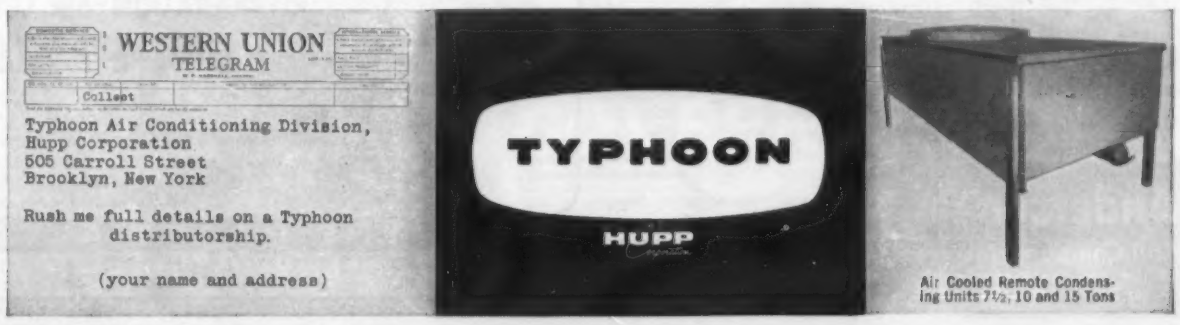
MIGHTY MITE PROTECTS MOTORS Against OVERLOADS OVER VOLTAGE UNDER VOLTAGE

MIGHTY MITE MOTOR PROTECTORS

MECHANICAL INDUSTRIES PRODUCTION CO.
223 Ash Street Akron, Ohio

INSTEAD, WE GIVE THEM MORE TO SELL, & MORE TO SELL WITH!

We don't preach growth, we practice it. Ask any Typhoon dealer. He'll tell you that he's making more profits today than ever before. Here's why. **28 New Units Added To The 1961 Line.** The greatest product range in Typhoon history...the broadest in the industry...to meet the demand for more specialized equipment. **Product scope.** A superior Typhoon unit for every need—a versatile solution for every problem in installation of air conditioners, furnaces, heat pumps. You sell the broadest line in the industry! **Customized Units.** At little or no extra cost, Typhoon custom-assembles its mass-produced components to your specific requirements. Because you save installation costs, you can sell competitively without sacrificing your profits! **Financing plans.** Less financial strain for you, simpler payment plans for your customers. Helps you stock and sell! **Sales incentives.** Exciting programs that offer bonus benefits for you and your family. **Planned progress.** For 1961, Typhoon dealers are following a complete "Prescription for Progress." National advertising. Local promotions. Specialized programs to make more profit from the Commercial, Industrial and Residential markets. Carefully planned. Skillfully executed...to give every Typhoon dealer the ammunition he needs to make more, more easily! All contained in a new sales kit! Study the facts and you'll agree: Typhoon dealers enjoy a considerable advantage in products, promotions and profits. Wouldn't you like to be one? For more facts and Reference Wall Chart on the complete line, use the collect telegram in this ad. Or call or write us.



Text of Agreement To Set Up Conference on Los Angeles Building Industry Bid Procedures

PLANS TO START new bid procedure in Los Angeles on Feb. 1 were announced in the Dec. 12, 1960 NEWS. At that time the agreements, rules, and regulations had been submitted to the Attorney General of the United States, and the attorney general of the state of California for their opinions. Herewith, the NEWS presents the text of the Agreement establishing the Construction Bidding Practices Conference of Southern California.

"Statement of purpose.

The signatories to this Agreement have voluntarily executed the same in the hope and belief that, by such action and in conforming to and respecting the provisions hereinafter set forth, they will materially promote the interests of the public and the Construction Industry, will create an atmosphere of confidence and mutual respect among General Contractors, Subcontractors and Materialmen, and will encourage fair and equitable dealings within the Construction Industry in keeping with the principles of competitive free enterprise.

The intent and purpose of this Agreement is to create a voluntary system of giving and receiving bids on subcontracts and materials in sufficient time to allow the General Contractor to analyze and evaluate sub-bids and material prices and his own bid, prior to a general bid filing.

It is the further intent and purpose of this Agreement in the interests of efficiency and economy for the benefits of the public and the Construction Industry, that a final low sub-bid be obtained by the General Contractor prior to a general bid filing.

Therefore, be it agreed:

1. **Agreement:** Each signatory to this Agreement does mutually agree with every other signatory and with the Construction Bidding Practices Conference of Southern California, to abide by this Agreement and the Rules and Regulations of the Construction Bidding Practices Conference of Southern California hereinafter called the Conference.

2. **Signatories:** Signatories to this Agreement, in addition to the Conference, are General Contractors and Sub-contractors, all licensed when required, and materialmen in the construction industry in the 11 Southern California counties, to wit: Imperial, Inyo, Kern, Los Angeles, Mono, Orange, Riverside, San Bernardino, San Luis Obispo, Santa Barbara, and Ventura.

3. **Scope.** (a) This Agreement shall apply in any of the counties referred to in Paragraph 2, above, which the Executive Committee of the Conference shall have determined and anounced to the members of the Conference that this Agreement will so apply.

(b) A "signatory" means one who by his signature to a counterpart of this Agreement, or by a separate agreement in writing, accepts and agrees to be bound by the provisions of this Agreement and the Rules and Regulations, and agrees to be bound by amendments to this Agreement or to said Rules and Regulations. Each signatory agrees that he or it will cause every business organization who would be a proper party hereto, over which he or it exercises control, to be guided by and observe the provisions of this Agreement.

4. **Management.** (a) The management of the Conference is vested in an Executive Committee composed of representatives of General Contractors and an equal number of representatives of Subcontractors. Each such representative shall be a principal or full-time employe of a contractor licensed by the State of California. Each member of the Executive Committee representing Subcontractors shall be identified with a field of subcontracting which is different from that of the other members representing Subcontractors. The actual number of such representatives shall be determined by the provisions of the Rules and Regulations of the Conference.

(b) The power to appoint members of the Executive Committee as representatives of General Contractors shall be vested in the General Contractor Bidding Practices Advisory Council composed of General Contractor Associations as may be listed in Schedule "A," which is attached hereto, and made a part of this Agreement. The said Advisory Council shall notify the Conference office of all changes in its membership.

(c) The power to appoint members of the Executive Committee as representatives of Subcontractors, shall be vested in the Subcontractor Bidding Practices Advisory Council, composed of Subcontractors' Associations as may be listed on Schedule "B," which is attached hereto, and made a part of this Agreement. The said Advisory Council shall notify the Conference office of all changes in its membership.

(d) The General Contractor Bidding Practices Advisory Council and the Subcontractor Bidding Practices Advisory Council shall be known herein as the "appointing powers." The appointing powers may appoint alternates for their respective members of the Executive Committee. A member or an alternate member of the Executive Committee shall serve at the pleasure of the respective appointing power which appointed him.

(e) A quorum for the conduct of business by the Executive Committee shall be not less than one-half of the members representing General Contractors and not less than one-half of the members representing Subcontractors present and acting at a duly convened meeting.

(f) Actions of the Executive Committee on all matters, except amendments to the Rules and Regulations, shall be taken by the favorable vote of not less than three-fourths of the members present at a duly convened meeting. However, members representing General Contractors and members representing Subcontractors shall have the right to cast an equal number of votes whether or not an equal number of each group are present. In the event the number of members present in one group is less than the number of members present in the other group, each member of the smaller group shall be vested with additional voting power in an amount sufficient to equalize the voting power of the two groups.

(g) The Executive Committee shall have power to amend or repeal the Rules and Regulations upon the unanimous concurrence of all members of said Committee, provided, however, that any such amendment shall not be enacted unless and until the proposed amendment:

(1) shall have been submitted to the appointing powers and they shall have been given an opportunity to present their views; and

(2) shall have been published not less than three times in a daily construction industry trade paper of general circulation published in the County of Los Angeles.

(h) The Executive Committee may establish and maintain an office for the Conference, appoint a manager and other necessary personnel, retain legal counsel, and employ advisors and investigators as it may determine necessary to carry out the purposes of this Agreement.

(i) The Executive Committee shall elect a Chairman and a Secretary-treasurer from among its own members. It shall develop and publish rules governing the procedures and operation of the Executive Committee, consistent with the terms of this Agreement. It may take whatever action it may deem desirable and expedient to achieve the purposes and objectives of the Conference, including the investigation of, and hearing of evidence concerning alleged violations of this Agreement. The findings of the Executive Committee evolving from any such hearing may be used by the Executive Committee, at its sole discretion, for any purpose consistent with the purposes and objectives of this Agreement. In conducting any such hearings the fundamentals of a full and fair hearing shall be observed. The Executive Committee may delegate its responsibility and functions in connection with the investigation or hearing of matters involving alleged violations of this Agreement.

(j) The Executive Committee shall have the right and power from time to time to make such charges for use of its facilities or membership in the Conference as it may deem necessary and reasonable to defray all or any part of the expense of operating the Conference. The schedule of any such charges shall be determined in advance of their imposition, shall be uniform among all members or classes of members, and among all signatories or classes of signatories, and shall be enacted and published as a part of the Rules and Regulations. Such charges shall not be retroactive.

5. **Waiver and Release.** It is deemed by the parties signatory to this Agreement and those bound hereby that any actions of the Executive Committee, its Subcommittees, or its personnel are for the benefit of the construction industry and in the best interests of the parties and those bound hereby; and, therefore, said parties and those bound hereby, whether individually affected or not, do hereby release and waive now and forever any claims of whatsoever nature or kind against the Executive Committee, its Subcommittees, its individual members, personnel or the appointing powers, arising out of any actions taken or adopted by said persons, including any publicity. It is the desire and intent of each party signatory to this Agreement and those bound hereby that no member of the Executive Committee, of its Subcommittees, its personnel, or the appointing powers, shall incur any legal liability whatsoever for any action taken in connection with the Conference or this Agreement.

6. **Resignations.** Any signatory to this Agreement may, at any time for any reason whatsoever, withdraw or resign from the Conference by giving notice in writing to that effect to the secretary of the Executive Committee at the office of the Conference, and such withdrawal or resignation shall be effective thirty (30) days after receipt thereof by said Committee, but such resignation or withdrawal shall not release the signatory of any obligations incurred prior to the effective date of the resignation. The other parties hereto shall be promptly notified of such withdrawal or resignation.

7. **Declaration.** Nothing herein set forth shall be construed to mean or indicate in any manner whatsoever that the parties signatory to this Agreement shall not have business dealings with other General Contractors, Subcontractors, or Materialmen who are not parties to this Agreement.

8. **Amendment.** The foregoing provisions of this Agreement may be amended by the Executive Committee sending a proposal for such amendment to all signatories by mail. Such amendment shall be deemed enacted if a majority of the General Contractor signatories who vote, together with a majority of the Subcontractor signatories who vote, favor the said amendment.

9. This Agreement shall be effective the ..... day of ....., 1961.

Construction Bidding Practices Conference of Southern California, by ....., chairman; by ....., secretary.

I agree to the foregoing and will comply therewith:

Firm name ..... by .....

title ..... date .....

Contractors State License number .....

NEWS readers are invited to write to the editor giving their opinions on any subject of interest to the industry.

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FREE PARKING AND FAST COUNTER SERVICE AT THESE 4 BIG WAREHOUSES

NAHB Show--

(Continued from Page 1, Col. 3)
concentrated in one building, rather than scattered between three locations. NAHB convention activities will be centered in the hall also.

A preview of the NAHB program gives no indication that any special attention will be devoted to air conditioning or heating this year.

Partial List Of Exhibitors

Among the exhibitors are the following:

Acme National Refrigeration Co.; Addison Products Co.; Admiral Sales Corp.; Air-Conditioning & Refrigeration Institute; Aluminum Co. of America; American Furnace Co.; American-Standard Air Conditioning and Plumbing & Heating Divs.; Armstrong Cork Co.; Armstrong Furnace Co.;

Baldwin-Ehret-Hill, Inc.; Bastian Morley Co.; Berns Air King Corp.; Better Heating & Cooling Council; Borg-Warner Corp.; Bryant Mfg. Co.;

Carrier Air Conditioning Co.; Cavalier Corp., Electric Heating Div.; Chicago Pump; Chrysler Corp., Airtemp Div.; Cobell Industries, Inc.; The Coleman Co.; Crane Co.;

Delco Appliance and Delco Products Divs., G. M. Corp.; Edison Electric Institute; Edwards Engineering Corp.; Electro-Air Cleaner Co., Inc.; Electromode, Div. of Commercial Controls Corp.; Emerson Electric Mfg. Co.;

Fasco Industries, Inc.; Fedders Corp.; Frigidaire Div. General Motors Corp.; General Electric Co.; Gustin-Bacon Mfg. Co.; Heil-Quaker Corp.; Hotpoint, Div. of General Electric Co.; Henry Furnace Co.; Hunter Div., Robbins & Myers, Inc.;

Insulite Div., Minnesota & Ontario Paper Co.; International Oil Burner Co.; Iron Fireman Mfg. Co.; Johns-Manville Corp.; Kelvintor Div., American Motors Corp.;

Lau Blower Co.; Leigh Building Products Div., Air Control Products, Inc.; Lennox Industries, Inc.; Majestic Co., Inc., Heating & Air Conditioning Div.; Mueller Climatrol, Div. of Worthington Corp.

National Fiberglas Corp.; National Gypsum Co.; C. A. Olsen Mfg. Co.; Owens-Corning Fiberglas Corp.; Perfection Div., Hupp Corp.; Philco Corp. Appliances Div.; Preway, Inc.

Radex Corp.; Revco, Inc.; Rheem Mfg. Co.; Robertshaw-Fulton Controls Co., Robertshaw Thermostat Div.; Sonoco Products Co.; Stewart-Warner Corp., Heating & Air Conditioning Div.; The Stiglitz Corp.; Sub-Zero Freezer Co., Inc.;

Thermador Electrical Mfg. Co.; Trane Co.; Trion, Inc.; United Cork Cos.; Utility Appliance Corp.; Welbilt Corp.; Westinghouse Electric Corp.; Whirlpool Corp.; Edwin L. Wiegand Co.; Wiremold Co.; Wood Conversion Co.; and Zonolite Co.

NEWS readers are invited to write to the editor giving their opinions on any subject of interest to the industry.

Detroit School Board Authorizes Experiment with Electric Heating

DETROIT — The Board of Education recently approved an experiment in the use of electricity for heating schools.

The board authorized Supt. Samuel M. Brownell to negotiate a 10-year contract with the Public Lighting Commission for electricity to heat two or three new schools.

The PLC has agreed to provide electricity at a sharply reduced rate during the experimental phase "so that costs for operating and maintenance will be no higher than if schools were heated by coal," Brownell said.

A PLC representative told the board it would be charged only 1.029 cents a kilowatt-hour to start. This is nearly a third of a cent under what it now pays for PLC service for lighting and more than a half-cent under regular electric rates.

An increasing number of new suburban schools are being equipped with electric heating systems, even though electricity as a fuel is considerably more expensive than coal or oil, it was reported.

Brownell said the use of electricity offers enough advantages to merit limited installation on a trial basis.

Advocates of electric heat say that an electrical system is cheaper to install, makes it possible to devote more of the building space to classrooms, is more flexible, and cuts down on operating personnel.

Ling-Temco Acquires Friedrich--

(Continued from Page 1, Col. 5)
air conditioners, residential and commercial air conditioners, heat pumps, and commercial refrigeration equipment.

"This is a major step in our program to develop our electromechanical and electronic commercial-consumer market," said LTE Board Chairman Robert McCulloch and President James J. Ling.

The LTE officials said no management changes in the Friedrich organization are anticipated and operations will continue at the existing Friedrich facilities in San Antonio. A spokesman indicated that the Friedrich firms would probably be operated as divisions of LTE.

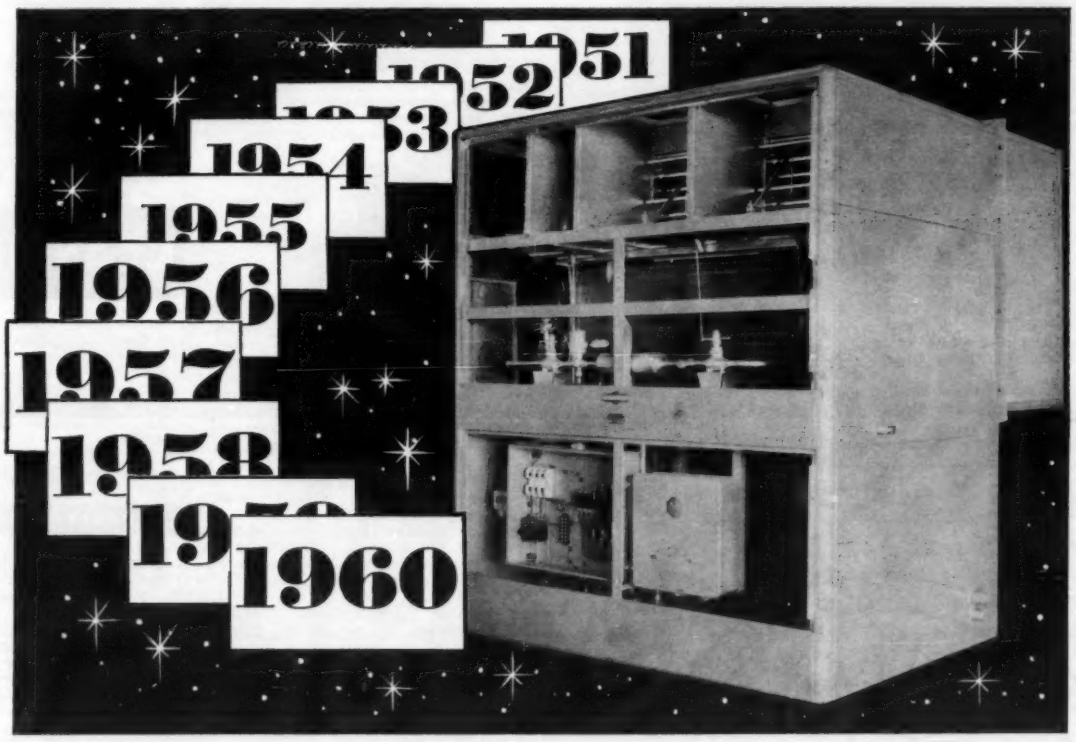
Friedrich product names will be retained and distribution channels will be continued as presently set up.

Reese L. Harrison, president of Friedrich since 1954, will continue to serve in that capacity.

A Friedrich spokesman indicated that the change would bring Friedrich additional engineering and research assistance and enable the company to improve and broaden its lines of equipment.

Unitary Shipments--

(Continued from Page 1, Col. 1)
unitary heat pumps, but do not include room air conditioners, reversible or otherwise. Self-contained unitary heat pumps shipped during the nine-month period — 20,916 units — were 29% ahead of the 1959 period, ARI reports. Of heat pumps shipped, about 67% were self-contained.



a decade of proven performance in self-contained multi-zone units

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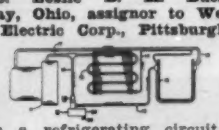
PATENTS

Week of Oct. 25

2,957,241. TUBE CUTTER. Charles L. Martin, Berkely, Mo., assignor to ACF Industries, Inc., New York, N. Y.

1. A demountable tube cutting assembly comprising a yoke adapted to circumscribe the tube to be cut, said yoke having divergent angularly related portions forming a bight therein adapted to contact and slidably retain the outer surface of the tube to be cut during operation, and substantially parallel resilient leg members beyond said bight, a cutting tool holder adapted to slidably engage said leg members, a tool feeder assemblable with said yoke for applying pressure to said cutting tool holder and the tube to be cut, and detachable connections between the ends of said leg members and said tool feeder engageable by operation of said resilient legs. . . .

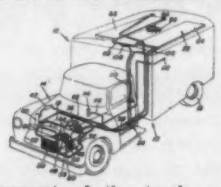
2,957,316. REFRIGERATING APPARATUS WITH HOT GAS DEFROST MEANS. Leslie B. M. Buchanan, Galloway, Ohio, assignor to Westinghouse Electric Corp., Pittsburgh, Pa.



1. In a refrigerating circuit comprising a compressor, a condenser, a flow impeding device, and an evaporator, said elements being connected in a series flow circuit, a bypass conduit connecting said compressor to said evaporator and adapted to convey hot gaseous refrigerant to said evaporator to effect defrosting of said evaporator, and means for controlling the flow of refrigerant through said bypass conduit, said means comprising a valve body having a refrigerant flow passage therethrough. . . .

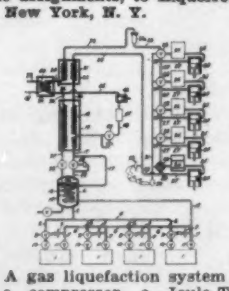
2,957,317. REFRIGERATION SYSTEM FOR DELIVERY TRUCKS. Harold B. Parker, Loudenville, Ohio, assignor to Parker Refrigeration Development Co.

2. In combination with a delivery truck for refrigerated products having an insulated pay load compartment, a refrigeration system comprising a compressor driven from the engine of the truck, a condenser cooled



by movement of the truck, and an evaporator unit mounted in the top of the pay load compartment. . . .

2,957,318. CONTROL FOR REFRIGERATING SYSTEM. Willard L. Morrison, Lake Forest, Ill., assignor, by mesne assignments, to Liquefreeze Co., Inc., New York, N. Y.



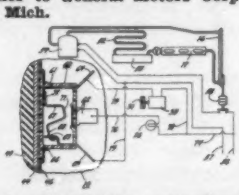
1. A gas liquefaction system including a compressor, a Joule-Thomson expander valve, a liquid gas receiver adapted to receive liquefied gas from the expander, a circuit including them, a plurality of chilling stations adapted to be selectively connected and disconnected in the circuit, to receive liquid from the receiver and return resultant gas to the compressor. . . .

2,957,319. PORTABLE SECTIONAL SKATING RINKS. Harry Traulsen, 41—15 Delong St., Plushing, N. Y.

1. A skating rink section, comprising a base layer of insulation material, a metal sheet enclosure for said layer, a plywood sheet overlaying said metal sheet to provide a rigid support for a slab of ice, a sheet metal floor overlying said plywood sheet, said enclosure having upstanding ends defining walls extending upwardly beyond said floor for forming part of a trough to receive water for freezing on the floor. . . .

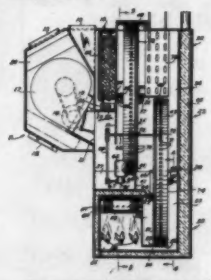
Editor's Note: Patents described here have been selected from the "Official Gazette" of the United States Patent Office. They offer only a brief summary of each invention. In some instances only the first part of the digest is presented.

2,957,320. REFRIGERATING APPARATUS WITH MAGNETIC DOOR SEAL ACTUATED SWITCH. Everett C. Armentrout, New Carlisle, Ohio, assignor to General Motors Corp., Detroit, Mich.



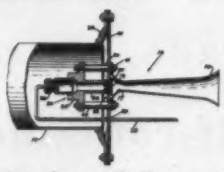
1. A refrigerating apparatus comprising in combination, a cabinet having walls defining a food storage chamber therein provided with an access opening, a door for said chamber access opening movably mounted on said cabinet, a refrigerating system associated with said cabinet including a refrigerant evaporator for cooling said chamber, a fan for circulating air within said chamber over said evaporator, an electric motor for driving said fan and an electrically operated refrigerant translating device. . . .

2,957,321. AIR CONDITIONING APPARATUS. Carl Georg Munters, 3 Danderydsvagen, Stocksund, Sweden, and Per Gunnar Norback, 1C Bergsliden, Lidingo, Sweden.



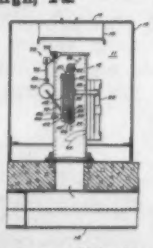
3. In an apparatus for conditioning air, an enclosing casing having an air inlet and an air outlet, partitions in said casing forming a passage for air flowing from the air inlet, a passage for air flowing to the air outlet and another passage for recirculating a body of regenerating medium in the casing, a plurality of air permeable transfer elements each mounted to rotate through two adjacent passages to transfer thermodynamic characteristics between the air in the different passages. . . .

2,957,402. SYSTEM FOR VENTILATING CONFINED SPACES. Philip Miller, East Norwich, N. Y., assignor to Associated Nucleonics, Inc., a corporation of New York.



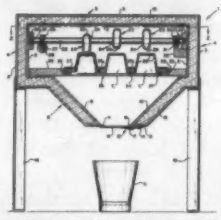
A system for ventilating a confined space comprising a conduit having an opening arranged to receive a supply of fresh air and having a delivery end, a flange secured to the delivery end of said conduit, a closure secured to said flange having an aperture therein, an aspirator tube attached to said closure having an inlet of smaller cross-sectional area than said conduit and having an outlet arranged to deliver fresh air into the space. . . .

2,957,403. FIRE DAMPER CONTROL APPARATUS. Glenn E. Kautz, Sewickley, Pa., assignor to H. H. Robertson Co., Pittsburgh, Pa.



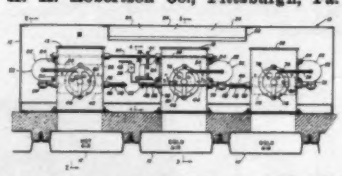
1. In an air conditioning and distributing system, an air delivery stack, a damper shaft having a damper fast thereon and operating in said stack, means operatively connected to said shaft for normally opening and closing said damper including means for resiliently urging the damper into an open position, independently operated and normally inoperative damper closing means including a weighted lever pivotally mounted on said damper shaft, a projection on said shaft. . . .

2,957,604. ICE CUBE DISPENSER. Borel X. Goldman, Saginaw, Mich., (2953 Beechwood Dr., S.E., Grand Rapids, Mich.), and Sol A. Morris, Saginaw, Mich., assignors, by mesne assignments, to Borel X. Goldman, Grand Rapids, Mich.



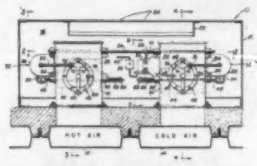
1. Ice cube dispensing apparatus comprising support means for supporting in inverted position an ice cube tray having yieldable walls forming at least one longitudinally extending row of compartments; a dispensing device associated with each of said compartments. . . .

2,957,628. PRESSURE AND TEMPERATURE CONTROL OF AIR MIXING OUTLET UNIT. Bernard E. Curran, Sewickley, Pa., assignor to H. H. Robertson Co., Pittsburgh, Pa.



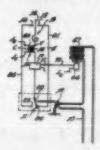
3. In an air conditioning and distribution system of the character described, in combination, an air discharge outlet unit comprising a casing defining a mixing chamber having a discharge outlet, and three spaced inlet stacks adapted for connection to air supply ducts through which air of different condition is caused to flow from the supply ducts into said chamber. . . .

2,957,629. PRESSURE AND TEMPERATURE CONTROL OF AIR MIXING OUTLET UNIT. Bernard E. Curran, Sewickley, Pa., assignor to H. H. Robertson Co., Pittsburgh, Pa.



2. In an air conditioning and distribution system of the character described, in combination, an air discharge outlet unit comprising a casing defining a mixing chamber and having a discharge outlet, a pair of air inlet stacks adopted for connection to air supply ducts and through which air of different conditions is caused to flow from the supply ducts into said chamber, means for maintaining a constant static pressure within each inlet. . . .

2,957,630. AUTOMATIC CONTROL SYSTEM FOR OPTIONAL HEATING AND COOLING. Douglas S. Sterner, Sherman Oaks, Calif., assignor to General Controls Co., Glendale, Calif.



In a combination heating and cooling system in which a fluid medium is used: electrically energizable means for activating the system; a bimetal

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POSITIONS WANTED

SERVICE MANAGER, service engineer's degree, age 50, desires connection in either or related capacity. Trade school graduate, 16 years' experience — domestic, small commercial field. Complete programming, factory, field training, dealers, service personnel. Recent member R.S.E.S., Service Managers Club. Address inquiry: E. G. STEGMANN, 304 N. Winter St., River Falls, Wisconsin.

COMBINATION EXPORT manager specializing refrigeration and air conditioning equipment interested additional lines. Have many years' experience and know-how and presently active in export field. Can furnish references integrity and financial responsibility. If seriously interested write BOX A6695, Air Conditioning, Heating & Refrigeration News.

POSITIONS AVAILABLE

WANTED FACTORY representatives and distributors in hot, dry climatic areas. We have developed and engineered the Bradley Precooler for use with air cooled condensers and we are manufacturing all sizes in quantity. For further information please write us immediately on your letterhead, giving references, area covered, and type of accounts serviced. AMERIKERN MANUFACTURING CORPORATION, P. O. Box 4202, Bakersfield, California.

MANUFACTURERS' REPRESENTATIVES wanted—calling on refrigeration companies, store fixture houses, restaurant supply and chain stores; for states other than Ohio, Michigan, Kentucky, Indiana, West Virginia, and Tennessee; to sell a complete line of competitively priced metal and wood walk-in refrigerators. Write to LOUISVILLE COOLER MANUFACTURING COMPANY, 325 W. Main St., Louisville 2, Kentucky.

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AGGRESSIVE, FAST-growing manufacturer of industrial refrigeration equipment seeks executive with strong sales and engineering background in refrigeration design and application. Unusual opportunity for man looking for a challenge with an excellent future. Extensive travel required. Must be willing to relocate. Salary open. Detailed resume to BOX A6701, Air Conditioning, Heating & Refrigeration News.

MANUFACTURERS' REPRESENTATIVES wanted by growing manufacturer of evaporators, blowers and other low side equipment, to cover wholesale and OEM accounts. Areas open include Michigan, Indiana and Ohio, and upstate New York. Write, stating background, lines presently handled, territory and organization. An excellent opportunity for a competent representative. Interviews can be arranged during Heating Exposition. Reply in confidence to BOX A6702, Air Conditioning, Heating & Refrigeration News.

SALES ENGINEER — Saginaw, Bay City and Midland area to cover Northern part of Michigan representing a line of major air conditioning equipment. All replies confidential. BOX A6703, Air Conditioning, Heating & Refrigeration News.

MANUFACTURERS' REPRESENTATIVES to handle leading manufacturer of roof mounted units. Oil and gas fired operation. Completely assembled, with or without heating. Ranging from 5 thru 35 tons. Territories open South, Mid Central, South West and North West. Brochure, engineering manual, list of installed jobs, available. BOX A6704, Air Conditioning, Heating & Refrigeration News.

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ATTENTION REFRIGERATION Servicemen. Send for catalog listing values in refrigeration and air conditioning parts, relays, capacitors, compressors. Savings up to 50%. WALTER W. STARR, 2833 Lincoln Ave., Chicago 13, Illinois.

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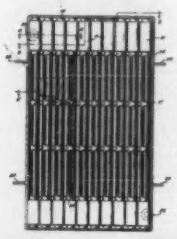
member carrying a contact member and subjected to the temperature of the place which is to be heated or cooled; a pair of contact members respectively on opposite sides of the bimetal member. . . .

2,957,679. HEAT EXCHANGER. Huntley M. Campbell, Alton, Ill., assignor to Olin Mathieson Chemical Corp., Alton, Ill.



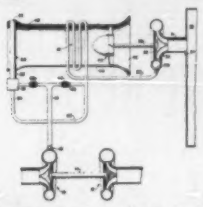
1. In a heat exchanger formed from pressure-welded component sheets having disposed internally between adjacent component sheets a plurality of spaced tubular passageways separated by substantially completely pressure-unified areas, each of said passageways extending internally across said welded sheets in substantially parallel relationship to each other and terminating short of a pair of opposite edges of said welded sheets. . . .

Week of Nov. 1

2,958,207. AIR COOLING SYSTEM. Stephan Braneky, R.F.D. 1, Canal Fulton, Ohio.

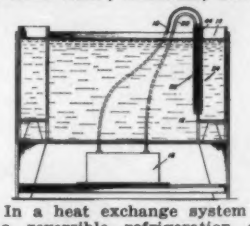
1. An automatic air cooling system of the character described comprising, in combination, a housing unit, an enclosure to be cooled within said housing unit, a Dry Ice storage compartment within said housing unit, a wall within said housing unit intermediate said enclosure and said compartment, said wall embodying a plurality of circumferentially equally spaced apart radial passageways, substantially the same size and shape as the spaces therebetween, and extending therethrough joining said closure with said compartment, a circular disc having a plurality of radially spaced apart slots of substantially the same size and shape as the spaces therebetween and also substantially the same size and shape as said passageways in said wall, rotatably mounted adjacent to said wall in a single plane between open and closed position relative to said passageways in said wall. . . .

2,958,208. HIGH PRESSURE RATIO COOLING SYSTEM. Frederick H. Green, Palos Verdes Estates, Calif., assignor to The Garrett Corp., Los Angeles, Calif.



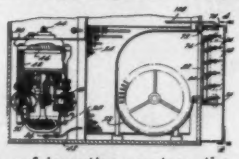
1. An expansion cooling system for cooling a space comprising: a source of pressurized elastic fluid; a duct system connecting said source of said space; at least two separate expansion means mounted in said duct; at least one of said expansion means consisting of a vortex tube having an inlet, a hot tube, and a cold outlet; duct means for connecting said inlet and said cold outlet to said duct system; and means driven by one of said expansion means for cooling the exterior of said hot tube. . . .

2,958,206. COMBINATION EVAPORATOR-CONDENSER PLATE ASSEMBLY. James O. Ewing, 4507 Belmont Park Place, Nashville, Tenn.



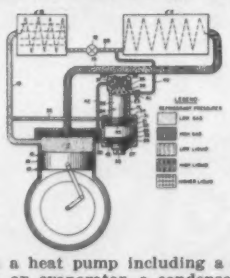
1. In a heat exchange system having a reversible refrigeration cycle, a combination evaporator-condenser plate comprising a generally inverted U-shaped plate assembly including a pair of spaced panels interconnected by a capillary passageway extending across the bight portion of the assembly, one of said panels being immersed in a solution to be cooled and the other of said panels being immersed in a solution to be heated, each panel having a plurality of vertically spaced heat exchange sections with the uppermost sections being interconnected by said capillary passageway....

2,958,208. CONTROL FOR A REFRIGERATION SYSTEM. Ralph S. Braden, Dayton, Ohio, assignor to Chrysler Corp., Highland Park, Mich.



In a refrigeration system the combination of a compressor driven by an electric motor hermetically sealed in a housing with said compressor, an air cooled condenser and blower means for creating a circulation of air thereover to cool it, an evaporator, a discharge line connecting said compressor with said condenser, a suction line connecting said evaporator with said housing and operable to dump refrigerant into the interior of said housing to pass such refrigerant over said electric motor to cool it and to supply such refrigerant to said compressor. . . .

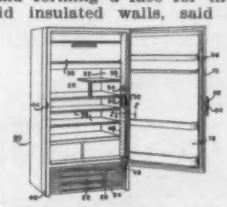
2,958,209. HEAT PUMP. Jasin G. Egon, 6739 N. Ionia, Chicago, Ill.



1. In a heat pump including a compressor, an evaporator, a condenser, an expansion valve, a low pressure line between the compressor and evaporator, a first high pressure line between the compressor and condenser, and a second high pressure line between the condenser and evaporator having the expansion valve therein, the improvement of means connected between the second high pressure line and the compressor receiving liquid refrigerant and being responsive to the compressing action of the compressor to increase the pressure of the liquid refrigerant and inject a predetermined amount of liquid refrigerant of increased pressure into the compressor. . . .

2,958,210. REFRIGERATING APPARATUS. John C. Rill, Jr., Dayton, Ohio, assignor to General Motors Corp., Detroit, Mich.

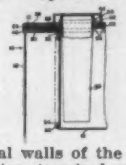
1. An insulated cabinet including a box shaped member having an open side and five insulated walls, a second open rectangular member of molded plastic extending around said open side and forming a face for the edge of said insulated walls, said second



member being fastened to and aligned with said box shaped member on its open side, an insulated door for closing said open side. . . .

2,958,212. REFRIGERATION APPARATUS. Henry F. Cohrt, R.R. 2, Box 167, Huron, S. D.

2. Refrigerating apparatus of the class described, comprising: a cabinet having a bottom, a top and upright peripheral walls joining the top and bottom, a hollow evaporator within the container and having a bottom spaced above the cabinet bottom and peripheral sides spaced inwardly from



the peripheral walls of the cabinet and rising to a top terminal rim abutting the cabinet top from below, said evaporator being elongated in one of its horizontal dimensions so that said top rim is relatively long and narrow, means securing the rim to the cabinet top. . . .

(To Be Continued)

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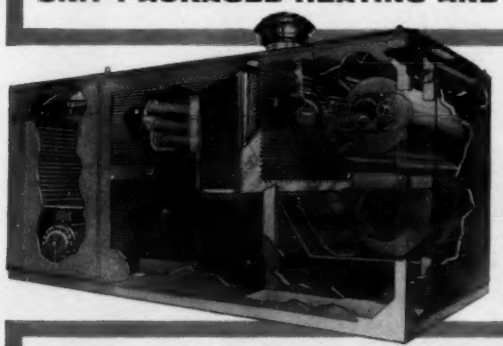

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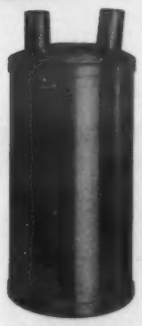

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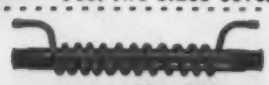

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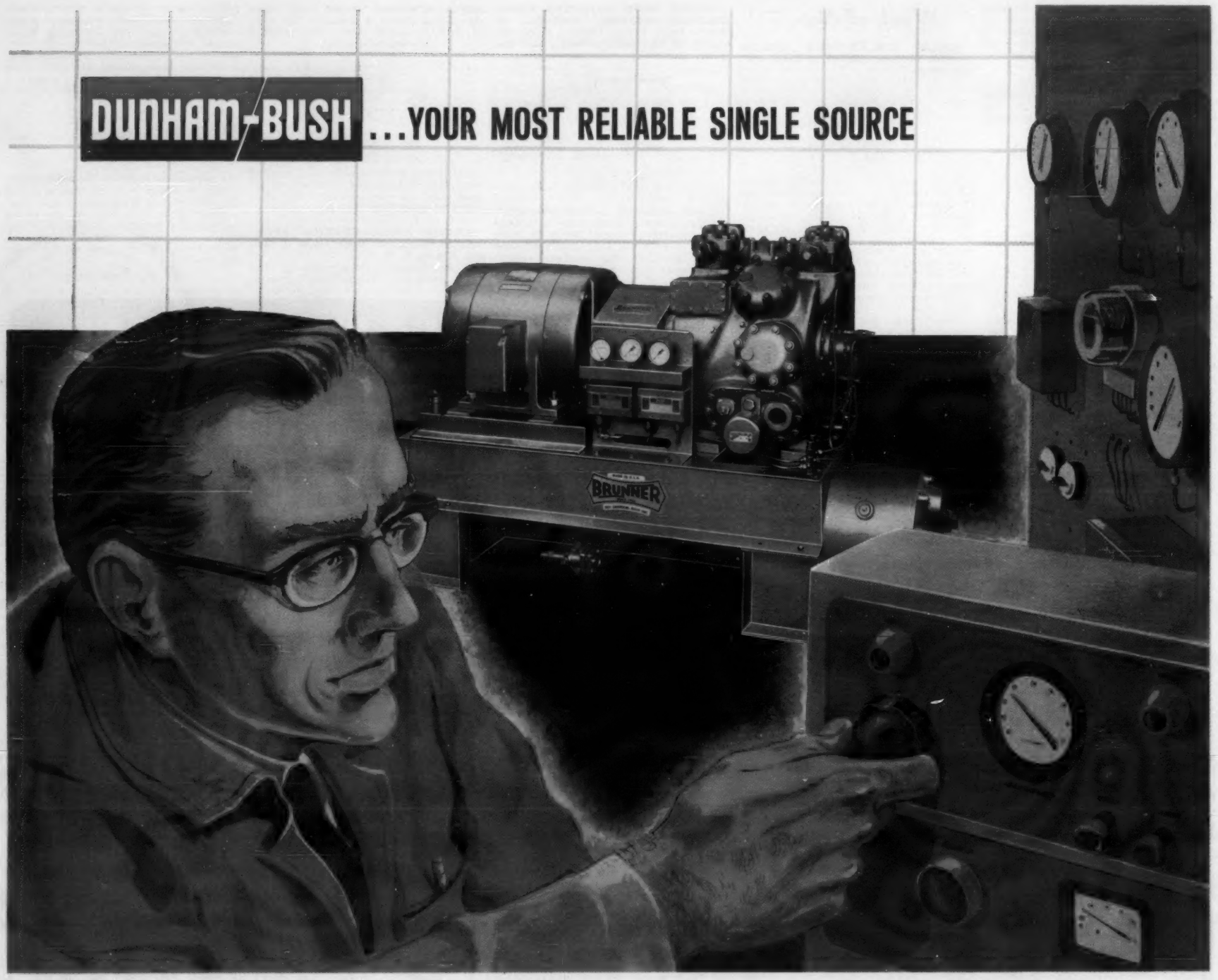

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